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In brief

New interactive mapping tool for fertility and mortality

'Fertility and mortality in England and Wales' is an interactive mapping tool which allows the user to analyse total fertility rates for females and age-standardised mortality rates for males and females at the local authority level more easily. The animated map shows how fertility and mortality rates have changed over time for each area. The mapping tool can be found at:

Fertility and Mortality in England and Wales

'Fertility and mortality in England and Wales' was released alongside mortality statistics 2009 (26 October 2010).

Mortality Statistics

It joins the animated maps of 'Life expectancy at birth for males and females by local authority in the UK' on the ONS website. The latter can be found at:

Life-expectancy

UK Health Statistics 2010 published

The fourth edition of UK Health Statistics will be available on the ONS website from 26 November. This compendium provides a reference for the comparison of key figures between the constituent countries, and between the UK as a whole and other nation states in Europe.

UKHS 4

Classification of diseases – a new update

From January 2011, ONS is introducing the latest version of the software used to code cause of death. The 10th revision of the International Classification of Diseases (ICD-10) was introduced in England and Wales in January 2001. Since then updates to the classification have been authorised by the World Health Organisation and are in use in other countries. The new version (ICDv2010) will make some changes to the allocation of cause of death. Prior to the publication of cause of death statistics for the data year 2011, a bridge coding study will be carried out to understand the impact of ICD-10 v2010. The results of the study will be published to help users understand the implications for specific causes of death and on time trends. The impact is expected to be small.

Estimates of life expectancy by NS-SEC from 1982 to 2006

A project has recently been undertaken by ONS to produce estimates of medium-term trends in life expectancy by the National Statistics Socio-economic Classification (NS-SEC). This will produce estimates of life expectancy by NS-SEC from 1982 to 2006. The most recent publication on this subject was in 2007, when ONS published 'Trends in life expectancy by social class 1972–2005' showing life expectancy at birth and age 65 for the various social classes.

The NS-SEC classification replaced Registrar General's social class in official statistics in 2001, but social class was retained for certain longer term studies because of its continuity over time. The new series required the linkage of occupations at the 1981 Census to the 1991 occupational classification (SOC90) and thus to NS-SEC. There are numerous technical and conceptual problems to be overcome in doing this and these will be discussed in an article in HSQ 49, together with the new life expectancy estimates. These will shed light on the path of inequalities in mortality and survival over a 24-year period.

The NHS reforms and vital events data

The Department of Health (DH) White Paper 'Equity and Excellence: Liberating the NHS' heralds major organisational changes in the NHS in England. One development is likely to be the transfer of local public health functions to local authorities. Because of legal restrictions on the dissemination of confidential births and deaths data, there is a risk that NHS staff who transfer to local government will no longer be able to receive essential data from ONS, such as the regular Public Health Mortality File. ONS is working with DH to find a solution to this problem.

Statistical outputs – ONS consults

In planning to meet the challenge of a reducing budget, and provide capacity for future developments, ONS is considering how to rationalise its current range of statistical outputs.

In order to inform this process ONS is consulting its stakeholders to find out more about how our outputs are used, and to ask what impact reductions to our statistical programme would have on them. The consultation, which will help set the direction of its priorities for the next four years, is available via the ONS Website.

Consultation

The consultation focuses on the areas where ONS outputs are not required by statute. The responses from the consultation will help to minimise the impact on users of any reductions to the statistical programme from 2011 onwards

The consultation will end on 24 December and ONS is hoping for a wide range of responses from a wide range of stakeholders.

Social inequalities in fatal childhood accidents and assaults: England and Wales, 2001–03

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Abstract

Background

This article presents age-specific mortality rates of children for selected causes of accidents and assault using the National Statistics Socio-economic Classification (NS-SEC). The study is an analysis of the social inequalities in fatal childhood accidents and assault at the start of the 21st century. It aims to identify the causes and age groups for which these inequalities are the widest.

Methods

In order to classify children by NS-SEC, the most advantaged class of the biological or adoptive parents was used. Death registrations provided the number of deaths from accidents and assault for children aged from 28 days to 15 years, in England and Wales, between 2001 and 2003. The population of children by NS-SEC and age group was obtained from the 2001 Census. Age-specific mortality rates were estimated. Inequalities were measured using socio-economic gradients in mortality.

Results

There were wide social inequalities in fatal accidents and assaults for children aged between 28 days and 15 years. The overall mortality rate in the routine class was 64 per million children aged up to 15, 4.5 times the rate of children with parents in the higher managerial and professional class. The greatest inequalities in accidental mortality for children in that age group were observed for fire and pedestrian accidents, followed by accidental suffocation. Infants at least 28 days but less than one year were subject to the widest inequalities of all age groups in fatal accidents and assault. The highest mortality rate in this study resulted from assault on babies whose parents could not be classified by occupation.

Pedestrian and other transport accidents were the greatest causes of death for children between 5 and 15 years old. Inequalities were much larger for pedestrian than for other transport accidents for children aged 14 years and under.

The leading cause of death for children aged less than five years was suffocation, followed by drowning and exposure to fire/hot substances. In that age group, the risk of death from exposure to fire was significantly higher for children whose parents could not be classified by occupation.

Conclusions

Substantial social inequalities in childhood mortality from accidents and assault existed in 2001–03. Reducing the large inequalities between the most advantaged class and the most disadvantaged group in the non-occupied category, would make a substantial impact on childhood deaths from accidents and assaults. If the mortality rates in the latter group were the same as in the most advantaged managerial and professional class, deaths of infants of at least 28 days but less than one year, from assault would be reduced by 62 per cent. Deaths from fire, accidental suffocation and pedestrian accidents in the under fives would be reduced by 50 per cent, 25 per cent and 28 per cent respectively. Deaths in pedestrian and transport accidents for children aged 5–15 would be reduced by 25 per cent and 16 per cent respectively.

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Introduction

Accidents and assaults are major causes of avoidable mortality in children. A Department of Health report (2002) highlighted accidental injury as a leading cause of child death in England and Wales, resulting in the deaths of over 1000 children aged under 15 years in 1998–2000. Furthermore, accidental mortality among children was reported to have a strong inverse relationship with social class. Assault is a relatively uncommon cause of death, but mortality rates for infants under the age of one year have been reported as being higher than in any other age group (Rooney and Devis,1999).

This article reports on social inequalities in childhood mortality due to accidents and assaults in England and Wales, 2001–03. The focus is on children from the postneonatal period (at least 28 days but under one year old) to the age of 15 years. The paper uses the National Statistics Socio-economic Classification (NS-SEC) of the child's biological or adoptive parents to analyse mortality rates for selected types of accidents and for assaults.

Background

The Black Report (1980) highlighted accidents as one of the most important causes of death among children aged between 1 and 14 years, and also one of the drivers of differences in mortality rates between Registrar General social classes I and V. The report identified accidents in the home as an area where major progress could be made quickly, but recognised that action to improve the environment outside the home was also important. The Registrar General's Decennial Supplements (OPCS, 1970–72 and 1979–80, 1982–83) have acknowledged accidental death as one of the causes of childhood mortality with the steepest socio-economic gradient.

In 1999 the White Paper *'Saving Lives: Our Healthier Nation'* made injury prevention a Government priority and set national targets to reduce the rates of accidental death and serious accidental injuries. At the time, the paper highlighted accidental injury as a leading cause of death among children. The paper also emphasised that accidental injury was responsible for more children being admitted to hospital each year than any other cause. The Department of Health, (2002) produced a report entitled *'Preventing Accidental Injury: Priorities for Action'* which advised on strategies and programmes that could help to reduce accidental death rates and serious injuries from accidents. In this report, traffic and pedestrian injuries were highlighted as the main causes of accidental death for children aged between 0 and 14 years in England in 2000. English children in the 10 per cent most deprived wards were shown to be more than three times as likely to be pedestrian casualties as those in the 10 per cent least deprived wards (Grayling, 2002).

World Health Organisation (WHO) statistics (Galan and Farchi, 2007), also identified the leading cause of accidental deaths in children and adolescents aged between 0 and 19 years in the European Region in 2002 as being road traffic injuries (37 per cent of accidental deaths). Other causes included drowning (15 per cent), poisoning (8 per cent), falls (5 per cent), fires (4 per cent) and other unintentional injuries (31 per cent).

The independent Audit Commission report *'Better safe than sorry – preventing unintentional injury to children'* (2007) acknowledged that although the accidental mortality rates of children were declining, unintentional injury was still a leading cause of death and hospital admission for children aged between one and 14 years. The report also highlighted that inequalities in accidental death for children in different socio-economic groups were persistent and broadening. This report concluded that 'unintentional injury has struggled to be a priority for many organisations' and made further recommendations on possible improvements on national and local levels.

Assault has also been highlighted as having a strong relationship with deprivation (Bellis *et al.*, 2008). Bellis *et al.* in their 2002–06 study found that higher rates of hospital admissions due to assault were associated with deprivation across all ages. Those aged 14 years and under residing in the poorest quintile in England had a rate of hospital admission due to assault six times higher than those in the least deprived quintile.

This article contributes to the debate on social inequalities in childhood accidents and assaults by presenting mortality rates for the period of 2001–03 for selected childhood accidents and for assaults. These rates will be presented according to the National Statistics Socio-economic Classification (NS-SEC) of the children's biological or adoptive parents in order to assess differences that exist between socio-economic groups.

Methods

This section describes the NS-SEC in more detail, specifies the data sources used in the analysis and describes the outcome measures adopted in this article.

The National Statistics Socio-economic Classification (NS-SEC)

The conceptual basis for the NS-SEC, as developed by Rose and Pevalin (2003), is the structure of employment relations operating in modern developed economies. Occupations are differentiated

in terms of reward mechanisms, promotion prospects, autonomy and job security. The most advantaged NS-SEC classes (higher managerial and professional), typically exhibit personalised reward structures, have good opportunities for advancement, relatively high levels of autonomy within the job, and are relatively secure. These attributes tend to be reversed for the most disadvantaged class (routine).

Box 1 National Statistics Socio-economic Classification Analytic classes

Analytic classes

Eight class version		Examples of occupations include	Three class version	
1.1	Large employers and higher managerial	Senior officials in national and local government; directors and chief executives of major organisations; officers in the armed forces	1	Professional and managerial occupation
1.2	Higher professional	Civil engineers, medical practitioners, physicists, geologists, IT strategy and planning professionals, legal professionals, architects		
2	Lower managerial and professional	Teachers in primary and secondary schools, quantity surveyors, public service administrative professionals, social workers, nurses, IT technicians		
3	Intermediate	NCOs and other ranks in the Armed Forces, graphic designers, medical and dental technicians, local government clerical officers, counter clerks	2	Intermediate occupations
4	Small employers and own account workers	Hairdressing and beauty salon proprietors, shopkeepers, dispensing opticians in private practice, farmers, self-employed taxi drivers		
5	Lower supervisory and technical	Bakers and flour confectioners, screen-printers, plumbers, electricians and motor mechanics employed by others, gardeners, rail transport operatives	3	Routine and manual occupations
6	Semi-routine	Pest control officers, clothing cutters, traffic wardens, scaffolders, assemblers of vehicles, farm workers, veterinary nurses and assistants, shelf fillers		
7	Routine	Hairdressing employees, floral arrangers, sewing machinists, van, bus and coach drivers, labourers, hotel porters, bar staff, cleaners and domestics, road sweepers, car park attendants		
Non-occupied		Never worked, Long-term unemployed, Full time students, Occupation inadequately described and Unclassified for other reasons		Non-occupied

ONS (2007)

The NS-SEC category is derived from an individual's occupation and employment status and the size of their organisation. Since size of organisation is not collected on the death register, a version of NS-SEC is used which is derived from occupation and employment status alone. This version of the NS-SEC is known as 'reduced NS-SEC' and is used throughout the following analysis.

NS-SEC is nested so that the operational categories can offer maximum flexibility in terms of the different collapses possible (within the underlying conceptual model of employment relations). Box

1 presents the eight and three class versions of the NS-SEC and shows how they are related (Rose and Pevalin, 2003).

For the purpose of this paper, those who had never worked, the long-term unemployed, full-time students, those with an occupation inadequately described and unclassified for other reasons are referred to as the non-occupied group. This latter class is not deemed to be a specific NS-SEC class (being composed of a disparate range of people).

On the death of a child, relatives (usually one or both parents) will register the death. Previously, for analysis purposes, the father's social class was always used if the father was present, and the mother's only if the father was absent. Owing to women's increased participation in the labour market in recent years, it was thought to be most appropriate to use a 'combined' classification where the most advantaged of the biological or adoptive parent's NS-SEC class was used to represent the child's socio-economic class.

The 'combined' classification method is a variant of Erikson's 'dominance' rule (Erikson, 1984), where a member of a household is classified by the person in the household who is 'dominant' in the labour market. The 'combined' classification has been used previously in an analysis describing social inequalities in adult female mortality (Langford and Johnson, 2009). So for example, if the mother is classified to a routine occupation (NS-SEC class 7) and the father is self-employed (NS-SEC class 4), then any children would be deemed to belong to NS-SEC class 4.

Data Sources for analysis

Two sources were used to extract the data needed to calculate the mortality rates by NS-SEC, reported in this article. Death registrations were used to determine the numerators and the 2001 Census was used to produce population estimates for the denominators.

Death registrations

Death registration records were used to identify accidental and assault related deaths of children from postneonatal (at least 28 days but under one year) to age 15 years, registered in England and Wales in the calendar years 2001 to 2003. It was assumed that the parents whose details were recorded on the death certificate were the biological or adoptive parents, not step-parents or foster carers. Accidental deaths were identified using the International Classification of Diseases, 10th revision (ICD-10). Box 2 lists the ICD-10 codes used to extract the mortality data reported in this article. Causes of death were grouped to ensure sufficiently large numbers for robust statistical analysis when broken down by age group, NS-SEC, and selected accidents.

Box 2 Causes of death included in the analysis

CAUSE OF DEATH	ICD 10 CODE	Deaths (%)
All accidents	V01–V99;W00-W99 X00–X59;Y85;Y86	1016 *(100)*
Pedestrian accidents	V01–V09	228 *(22)*
Transport accidents – excluding Pedestrian	V10–V99; Y85	307 *(30)*
Falls	W00–W19	42 *(4)*
Accidental drowning and submersion	W65–W74	96 *(9)*
Fire/flame, exposure to hot objects/substances	X00–X19	97 *(10)*
Suffocation	W75–W84	174 *(17)*
Other accidents	W20–W64;W85–W99; Y86;X20–X59	72 *(7)*
Assault	X85–X99; Y00–Y09; Y100–Y349 where mdth10=014	164

Deaths resulting from assaults were more difficult to identify. In England and Wales, up to half the deaths eventually classified as assault (X85–Y09) may not appear as such in the original annual data. Deaths being investigated and registered before the cause can be certified fully are assigned a temporary underlying cause code and a manner of death code indicating that the verdict is still 'pending investigation' (Rooney and Davis, 1999). Therefore the 242 cases identified in this current study (in 2001–03) as assault with verdict pending were investigated further to determine their

status at the time of the current analysis. The results showed that 68 per cent of the cases investigated were classified as assault, 9 per cent were ascribed to transport accidents (and transferred to that category) and 23 per cent were reported as still pending in August 2010 and hence are excluded from this analysis.

The 2001 Census

The 2001 Census provided data on all dependent children aged 28 days to 15 years in England and Wales, classified according to the combined NS-SEC of the biological or adoptive parents. The most advantaged of the parents' NS-SEC class was used to represent the child's socio-economic position. When the child was living with one biological or adoptive parent only (children living with a single parent or in step-families) the NS-SEC class of that biological or adoptive parent was chosen to represent the socio-economic class of the child. Children not living with any biological or adoptive parents, such as those in foster placements or communal establishments (0.2 per cent of the total population of dependent children aged 28 days to 15 years in England and Wales) were not included in this study.

Table 1 illustrates the population of children aged 28 days to 15 years used in this analysis. The numbers presented were used as denominators in the calculation of reported mortality rates.

Table 1 Population of children: by age group and NS-SEC[2] of biological and adoptive parents[3], 2001

England and Wales — Numbers

NS-SEC[2]	Age group					
	0[1]–1	1–4	5–9	10–14	15	0[1]–15
1.1 Large employers and higher managerial	46,367	204,337	246,449	226,425	41,422	765,000
1.2 Higher professional	57,543	238,250	271,193	248,022	45,216	860,224
2. Lower managerial & professional	152,421	663,217	829,346	856,813	165,875	2,667,672
3. Intermediate	63,102	280,470	342,247	342,024	65,097	1,092,940
4. Small employers & own account	32,948	179,888	280,612	309,981	60,066	863,495
5. Lower supervisory and technical	41,347	192,060	251,929	264,528	51,970	801,834
6. Semi-routine	62,778	293,184	389,707	423,831	80,706	1,250,206
7. Routine	35,341	169,081	223,513	238,999	46,335	713,269
'Non-occupied' [4]	44,643	258,106	425,171	429,321	80,816	1,238,057
Total	536,490	2,478,593	3,260,167	3,339,944	637,503	10,252,697

1 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)
2 Reduced NS-SEC based on the most advantaged NS-SEC of either biological/ adoptive mother or biological/ adoptive father
3 21,501 children not living with any biological and adoptive parents were not included in the population for analysis
4 'The 'Non-occupied' category includes 'never worked, long-term unemployed, full-time students, inadequately described and unclassified for other reasons'.

Outcome measures:

To compare the accidental and assault-related mortality of children belonging to different socio-economic classes, the age-specific mortality rates by NS-SEC were calculated for the following agebands: postneonatal (babies at least 28 days but under one year old), 1–4, 5–9, 10–14 and 15 years. This measure was based on the number of child deaths in each age group and class divided by the population of children in the same age group and class at risk. Ninety-five per cent confidence intervals were constructed for the various mortality rates.

The ratios of the mortality rates of the least advantaged to the most advantaged were calculated for both the full and three-classes condensed version of NS-SEC. These are referred to in the article as socio-economic gradients. The ratios of the mortality rate of the non-occupied to the most advantaged were also calculated. Significance tests were used to assess these ratios between the least and most advantaged classes.

Results

Number of deaths from accidents and assault for children aged between 28 days and 15 years

There were 1016 accidental deaths of children aged between 28 days and 15 years in the years 2001–03, representing 13 per cent of all deaths to children of that age in that time period. The numbers and percentages of accidental deaths by age group and by cause are reported in Table 2.

Transport accidents excluding pedestrian accidents were the greatest overall cause of accidental death for children aged 28 days–15 years (30 per cent of all accidental deaths), followed by pedestrian accidents (22 per cent of all accidental deaths). The next most important cause was suffocation (17 per cent of all accidental deaths), but this was by far the most important cause among children aged 4 years and under (31 per cent of all accidental deaths). Drowning and submersion, and fire were respectively the second and third most important causes of accidental death for children aged 4 years and under (15 per cent of all accidental deaths respectively).

There were 164 deaths from assault for children aged 28 days–15 years, of which 59 per cent occurred in children under five years.

Table 2 Accidental deaths of children: by age group and cause of death, 2001–03

England and Wales — Numbers and Percentages

Cause of death	Age group									
	0[1]–4		5–9		10–14		15		0[1]–15	
	Number of deaths	Percentage	Number of deaths	Percentage	Number of deaths	Percentage	Number of deaths	Percentage	Number of deaths	Percentage
All Accidents	**344**	*100*	**186**	*100*	**357**	*100*	**129**	*100*	**1016**	*100*
Pedestrian accidents	49	*14*	55	*30*	102	*29*	22	*17*	228	*22*
Other transport accidents	48	*14*	56	*30*	131	*37*	72	*56*	307	*30*
Falls	16	*5*	4	*2*	19	*5*	3	*2*	42	*4*
Drowning	53	*15*	19	*10*	18	*5*	6	*5*	96	*9*
Fire/Hot substances	50	*15*	27	*15*	17	*5*	3	*2*	97	*10*
Suffocation	105	*31*	10	*5*	45	*13*	14	*11*	174	*17*
Other accidents	23	*7*	15	*8*	25	*7*	9	*7*	72	*7*
Assault	**97**		**33**		**29**		**5**		**164**	

1 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)

Source: Death registration records

Age-specific mortality rates from all accidents by NS-SEC and age group

The age-specific mortality rates per 1,000,000 children by socio-economic classification and by age group for all accidents are shown in Table 3 and illustrated in Figure 1. The ratios of mortality rates of children classified in NS-SEC class 7 and in the non-occupied group respectively, to that of children classified in NS-SEC class 1 are presented in Table 3 and illustrated in Figure 2.

Table 3 Age-specific mortality rates[1,2] of children from all accidents: by NS-SEC and age group, 2001–03

England and Wales

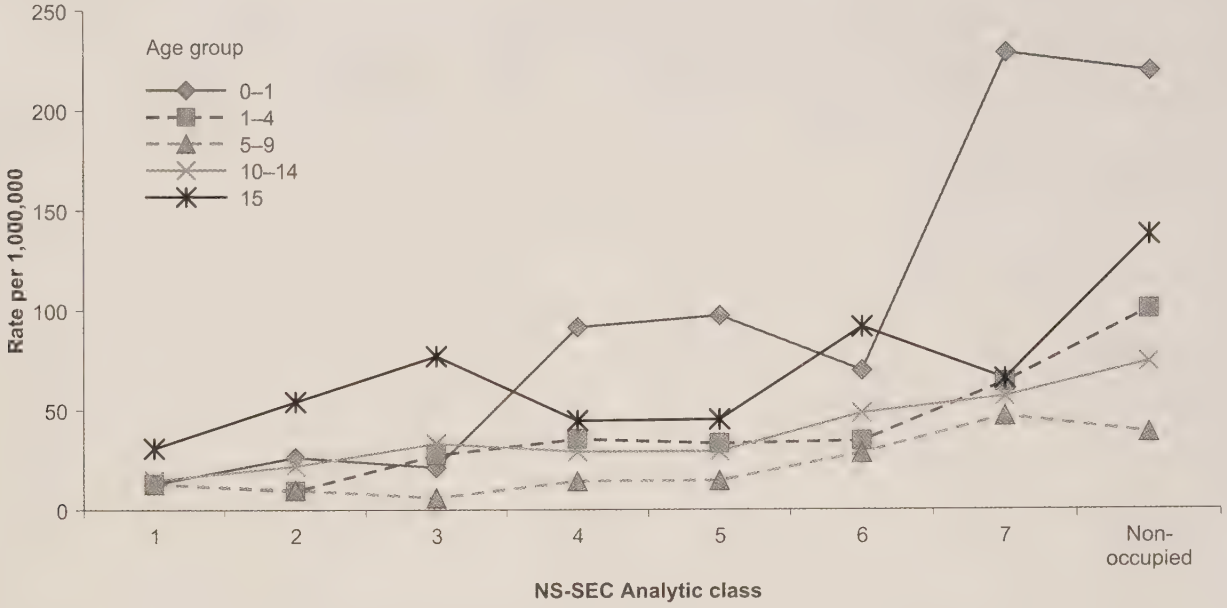
Rate per million

NS-SEC		ALL ACCIDENTS					
		Age group					
		0[3]–1	1–4	5–9	10–14	15	0[3]–15
1	Higher managerial, professional	13	13	13	15	31	14
		(5,34)	(8,21)	(8,20)	(10,23)	(15,62)	(11,18)
1.1	Large employers, higher managers	7	8	18	13	48	15
		(1,51)	(3,20)	(10,30)	(7,25)	(22,107)	(11,21)
1.2	Higher professionals	17	17	9	16	15	14
		(6,54)	(10,30)	(4,18)	(9,28)	(4,59)	(10,19)
2	Lower managerial, professional	26	10	10	22	54	18
		(15,46)	(6,16)	(7,15)	(17,29)	(37,79)	(15,21)
3	Intermediate	21	27	6	33	77	25
		(8,56)	(18,41)	(3,13)	(24,46)	(46,127)	(20,31)
4	Small employers, own account workers	91	35	14	29	44	29
		(47,175)	(22,55)	(8,25)	(20,42)	(22,89)	(23,36)
5	Lower supervisory and technical	97	33	15	29	45	30
		(55,170)	(21,52)	(8,26)	(19,44)	(21,94)	(24,38)
6	Semi-routine	69	34	28	48	91	42
		(40,119)	(24,49)	(20,40)	(37,62)	(60,138)	(36,50)
7	Routine	226	63	46	56	65	64
		(151,338)	(45,89)	(33,66)	(41,76)	(34,124)	(54,75)
'Non-occupied'[4]		217	99	38	73	136	76
		(151,312)	(80,124)	(28,50)	(60,89)	(97,191)	(67,85)
All children		66	32	19	36	67	33
		(55,80)	(28,36)	(16,22)	(32,40)	(57,80)	(31,35)
Ratio 7:1		17.6	4.9	3.6	3.8	2.1	4.5
		(6.1,50.8)	(2.7,8.9)	(2.0,6.3)	(2.2,6.4)	(0.8,5.5)	(3.3,5.9)
Ratio 'Non-occupied':1		16.9	7.8	2.9	4.9	4.4	5.3
		(5.9,48.0)	(4.6,13.1)	(1.7,4.9)	(3.1,7.9)	(2.0,9.6)	(4.1,6.9)

1 Age-specific mortality rates along with 95 per cent Confidence Intervals shown below the rates in parenthesis
2 Figures in table are rounded to nearest integer
3 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)
4 The 'Non-occupied' category includes 'never worked, long-term unemployed, full-time students, inadequately described and unclassified for other reasons'.

Figure 1 Age specific mortality rates from all accidents by NS-SEC and age group, children aged 0[1]–15, 2001–03

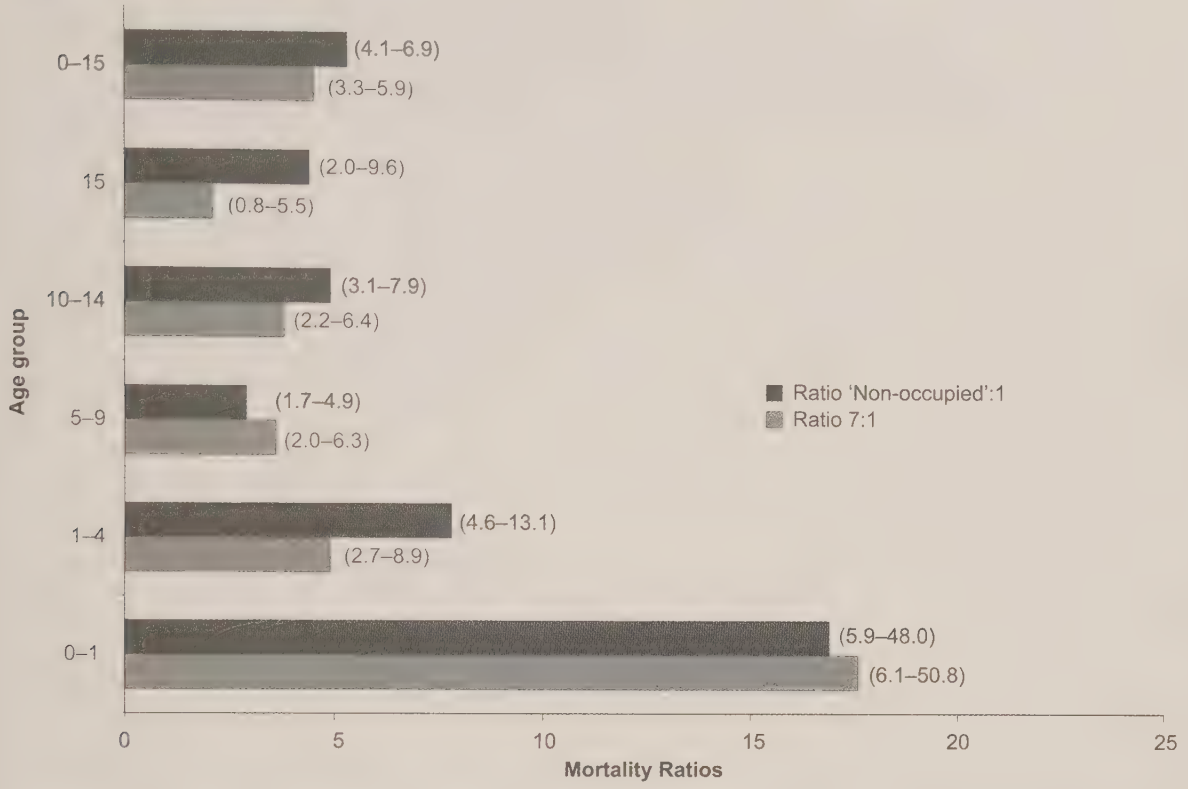
England and Wales



1 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)

Figure 2 **Age-specific mortality ratios[1] from all accidents by age group, children aged 0[2]–15, 2001–03**

England and Wales



1 The mortality ratios are the ratios of mortality rates in NS-SEC class 7 and the 'Non-occupied' category respectively, to the mortality rate in NS-SEC class 1, for all accidents, 95 per cent Confidence Intervals shown in parenthesis
2 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)

The risk of accidental death for all children aged between 28 days and 15 years was significantly higher in the routine class (NS-SEC class 7) than in any other NS-SEC analytic classes, as seen in Table 3. A child in the age group 28 days–15 years in the routine class had a risk of accidental death 4.5 times higher than a child with at least one parent in a higher managerial or professional occupation (95 per cent confidence interval: 3.3, 5.9). However, the highest accidental mortality rate occurred when parents were classed as non-occupied (never worked, long-term unemployed, full-time students or unclassified) at 76 per million and was 5.3 (4.1, 6.9) times higher than the rate for those with at least one parent in the higher managerial and professional class (Table 3 and Figure 2).

Although the socio-economic patterns in accidental mortality within the different age bands mirrored in many respects that of all children between 28 days and 15 years, there were some age band-specific patterns (Figures 1 and 2, Table 3).

The highest accidental death rates among children occurred in infants aged at least 28 days but under one year, classified to the routine occupation class (226 per million). Infants in this age group in the routine class were 17.6 (6.1, 50.8) times more likely to die from an accident compared to children with at least one parent in the higher managerial/professional class (Table 3). The

corresponding mortality ratio was similar when both parents were non-occupied, at 16.9 (5.9, 48.0). Consequently the socio-economic differences in accidental mortality were wider for this age group than for children at other ages, as shown in Figure 2.

Mortality rates from all accidents in the age group 5–9 were generally smaller than for younger or older children. The ratio of deaths between the parents in the non-occupied category and the higher managerial/professional class was more modest than in other age groups, at 2.9 (1.7, 4.9).

Mortality rates for children aged 15 years were generally higher across most analytical classes than other age groups, with the exception of the postneonatal age group (babies at least 28 days but under one year old). The mortality ratio between the routine and the higher managerial/professional classes was the lowest of all age groups, at 2.1 (0.8, 5.5). The accidental mortality rates for children aged 15 years with parents in the non-occupied group was particularly high at 136 per million with a mortality ratio of 4.4 (2.0, 9.6) compared to those with a parent in the most advantaged class.

Age-specific mortality rates from selected accidental causes and from assault by NS-SEC

Table 4 and Figure 3 enables comparison of the mortality rates of children aged from 28 days to 15 years across the selected causes of death in each of the NS-SEC analytic classes as well as in the non-occupied category. The relative sizes of the socio-economic gradients in mortality among causes of death are illustrated in Figure 4.

Table 4 Age-specific mortality rates[1,2,3] from selected causes: by NS-SEC, children aged 0[4]–15, 2001–03

England and Wales

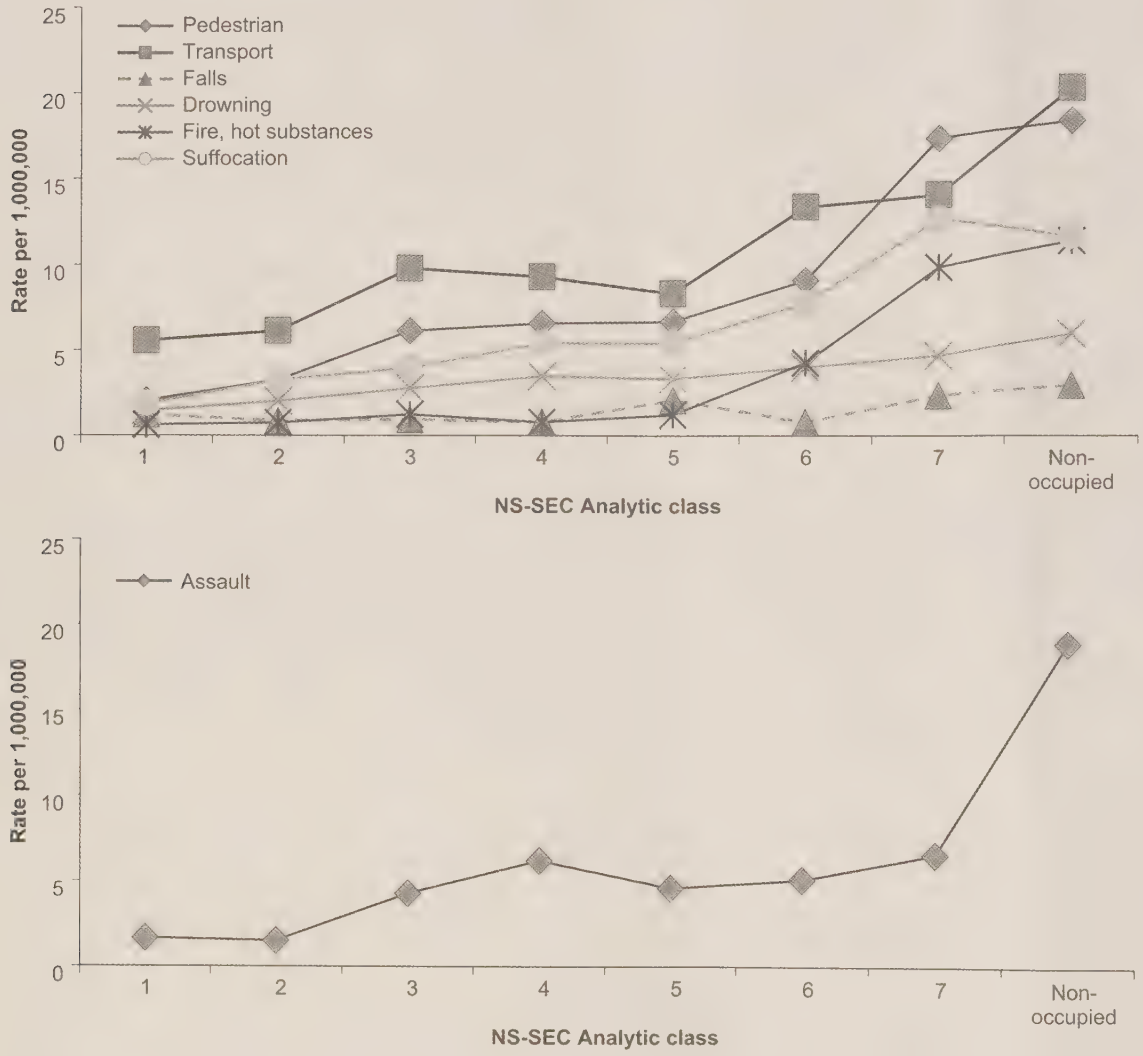
Rate per million

NS-SEC	Causes of death								
	All accidents	Pedestrian accidents	Other transport accidents	Falls	Drowning	Exposure to Fire/Hot Substances	Suffocation	Other Accidents	Assault
1 Higher managerial, professional	14	2	6	1	1	1	2	2	2
	(11,18)	(1,4)	(4,8)	(1,3)	(1,3)	(0,2)	(1,4)	(1,3)	(1,3)
1.1 Large employers, higher managers	15	3	8	-	-	-	-	2	1
	(11,21)	(1,6)	(5,12)	-	-	-	-	(1,5)	(0,4)
1.2 Higher professionals	14	2	3	2	2	-	3	2	2
	(10,19)	(1,4)	(2,7)	(1,5)	(1,5)	-	(1,6)	(1,4)	(1,5)
2 Lower managerial, professional	18	3	6	1	2	1	3	1	1
	(15,21)	(2,5)	(5,8)	(0,2)	(1,3)	(0,2)	(2,5)	(1,2)	(1,3)
3 Intermediate	25	6	10	1	3	1	4	-	4
	(20,31)	(4,9)	(7,14)	(0,3)	(1,5)	(1,3)	(2,7)	-	(3,7)
4 Small employers, own account workers	29	7	9	-	3	-	5	3	6
	(23,36)	(4,11)	(6,14)	-	(2,7)	-	(3,9)	(1,6)	(4,10)
5 Lower supervisory and technical	30	7	8	2	3	1	5	3	5
	(24,38)	(4,11)	(5,13)	(1,5)	(2,7)	(0,4)	(3,9)	(1,6)	(3,8)
6 Semi-routine	42	9	13	1	4	4	8	3	5
	(36,50)	(6,13)	(10,18)	(0,2)	(2,7)	(3,7)	(5,11)	(2,6)	(3,8)
7 Routine	64	17	14	2	5	10	13	3	7
	(54,75)	(13,24)	(10,20)	(1,6)	(3,9)	(6,15)	(9,18)	(1,6)	(4,11)
'Non-occupied'[5]	76	18	20	3	6	11	12	5	19
	(67,85)	(14,23)	(16,25)	(2,5)	(4,9)	(8,15)	(9,16)	(3,8)	(15,24)
All children	33	7	10	1	3	3	6	2	5
	(31,35)	(7,8)	(9,11)	(1,2)	(3,4)	(3,4)	(5,7)	(2,3)	(5,6)
Ratio 7:1	4.5	8.4	2.5	1.9	3.3	15.9	6.8	1.7	4.3
	(3.3,5.9)	(4.2,17.0)	(1.5,4.3)	(0.6,6.2)	(1.2,8.6)	(4.8,53.5)	(3.2,14.5)	(0.6,4.9)	(1.8,10.2)
Ratio 'Non-occupied':1	5.3	8.9	3.6	2.4	4.1	18.4	6.3	3.3	11.6
	(4.1,6.9)	(4.6,17.3)	(2.3,5.6)	(0.9,6.5)	(1.8,9.7)	(5.7,59.3)	(3.1,12.9)	(1.4,7.5)	(5.6,24.1)

1 Age-specific mortality rates along with 95 per cent Confidence Intervals shown below the rates in parenthesis.
2 Figures in table are rounded to nearest integer.
3 Age-specific mortality rates were not calculated where there were fewer than 3 deaths in a cell, denoted by a hyphen (-).
4 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year).
5 The 'Non-occupied' category includes 'never worked, long-term unemployed, full-time students, inadequately described and unclassified for other reasons'.

Figure 3 Age-specific mortality rates from selected causes of accident and assault, by NS-SEC, children aged 0[1]–15, 2001–03

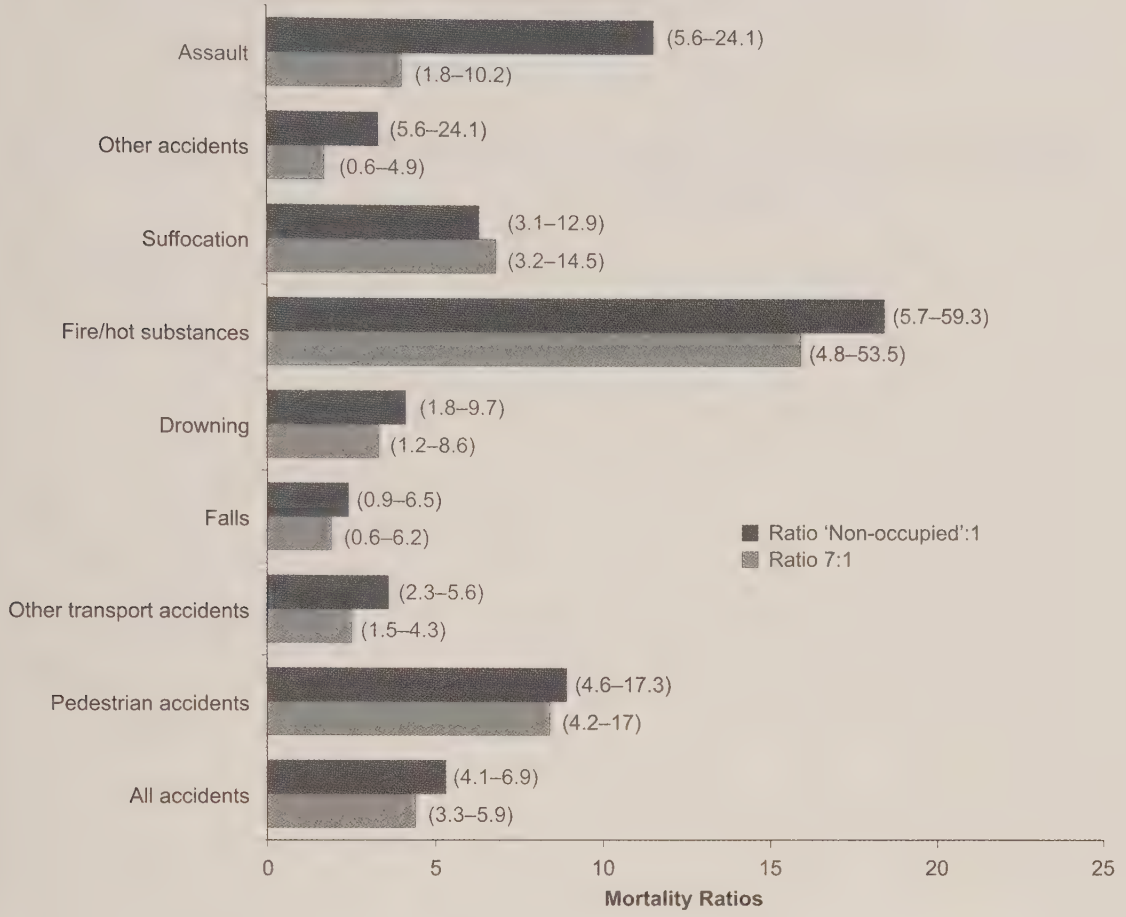
England and Wales



1 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)

Figure 4 Age-specific mortality ratios[1] from selected causes of accidents and assault, children aged 0[2]–15, 2001–03

England and Wales



1 The mortality ratios are the ratios of mortality rates in NS-SEC class 7 and the 'Non-occupied' category respectively, to the mortality rate in NS-SEC class 1, for all accidents. 95 per cent Confidence Intervals shown in parenthesis
2 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)

Mortality rates from exposure to fire or hot substances contributed very little to death rates from accidents in the most advantaged NS-SEC analytic classes. However, owing to the high rates of death in the 'Routine' classes, as well as in the non-occupied category, this cause had the greatest socio-economic gradient in mortality taking all age groups of children together (15.9 and 18.4 respectively).

Suffocation and pedestrian accidents also showed large mortality ratios between NS-SEC classes 7 and 1 (6.8 and 8.4). For pedestrian accidents there was a significant difference in mortality rate between the routine and semi-routine classes.

The lowest socio-economic gradients in mortality were for drowning, transport accidents (excluding pedestrian accidents), falls and other accidents. In the latter two categories of accidents, children in the routine category did not have a significantly greater risk of death than children in the higher managerial/professional class.

Deaths from assault had significant socio-economic gradients in mortality but there was a large difference between the rates for the routine class (7 per million (4, 11)) and the non-occupied (19 per million (15, 24)). The rate of mortality from assault in children aged between 28 days and 15 years was 11.6 (5.6, 24.1) times higher when parents were classed as non-occupied than when at least one parent was in the higher managerial and professional class.

Mortality rates from selected accidental causes and from assault by condensed NS-SEC and by age group

Mortality rates by condensed three-class NS-SEC and by age group for the different accidental causes of death are shown in Tables 5, 6 and 7. The condensed version has been used because of very small numbers of deaths in some classes when broken down by age group and cause.

Pedestrian and other transport accidents

Table 5 shows that for both pedestrian and other transport accident mortality rates increased with disadvantage. Inequalities in mortality, as evidenced by the socio-economic gradients, were more pronounced for pedestrian accidents than for other transport accidents, except at age 15, where there was no socio-economic gradient in mortality for pedestrian accidents. Inequalities in mortality tended to decrease with age for pedestrian accidents, but there appeared to be no age-related pattern in inequalities for other transport accidents (although their volume increased substantially with age).

Table 5 Age-specific mortality rates[1,2] of children from all accidents, pedestrian and transport accidents: by 'reduced NS-SEC' and age group, 2001–03

England and Wales

Rate per million

Reduced NS-SEC	Age group														
	0[3]-4			5-9			10-14			15			0[3]-15		
	All	Pedestrian	Transport	All	Pedestrian	Transport	All	Pedestrian	Transport	All	Pedestrian	Transport	All	Pedestrian	Transport
1 Managerial and professional	13	1	2	11	2	5	20	4	8	46	11	18	16	3	6
	(10,17)	(1,3)	(1,5)	(8,15)	(1,4)	(3,8)	(16,24)	(2,6)	(6,11)	(33,64)	(5,21)	(11,31)	(14,19)	(2,4)	(5,7)
2 Intermediate	33	7	5	10	2	4	31	9	13	61	11	40	27	6	10
	(25,43)	(4,13)	(3,10)	(6,15)	(1,5)	(2,8)	(24,40)	(6,15)	(9,19)	(41,92)	(4,28)	(24,66)	(23,31)	(5,9)	(7,12)
3 Routine and Manual	55	7	6	29	11	7	45	13	14	71	11	50	44	10	12
	(46,65)	(4,11)	(4,10)	(23,36)	(7,16)	(4,11)	(37,53)	(9,18)	(11,20)	(51,97)	(5,25)	(34,73)	(40,49)	(9,13)	(10,15)
'Non-occupied'[4]	117	17	15	38	13	9	73	26	26	136	16	66	76	18	20
	(96,141)	(10,27)	(9,26)	(28,50)	(8,20)	(5,16)	(60,89)	(18,36)	(19,37)	(97,191)	(6,44)	(40,108)	(67,85)	(14,23)	(16,25)
All children	38	5	5	19	6	6	36	10	13	67	12	38	33	7	10
	(34,42)	(4,7)	(4,7)	(16,22)	(4,7)	(4,7)	(32,40)	(8,12)	(11,16)	(57,80)	(8,17)	(30,47)	(31,35)	(7,8)	(9,11)
Ratio 3:1	4.2	5.8	2.6	2.6	5.4	1.4	2.3	3.4	1.8	1.5	1.1	2.7	2.7	3.8	2.0
	(3.1,5.8)	(2.2,15.8)	(1.2,5.7)	(1.8,3.8)	(2.5,12.0)	(0.7,2.6)	(1.7,3.0)	(1.9,6.3)	(1.1,2.9)	(1.0,2.4)	(0.4,3.0)	(1.4,5.2)	(2.3,3.2)	(2.5,5.5)	(1.5,2.8)
Ratio 'Non-occupied':1	9.0	13.5	6.3	3.4	6.3	1.7	3.7	6.8	3.3	2.9	1.6	3.6	4.6	6.5	3.4
	(6.5,12.5)	(4.9,37.1)	(2.8,14.2)	(2.3,5.1)	(2.7,14.8)	(0.8,3.6)	(2.8,5.0)	(3.7,12.6)	(2.0,5.3)	(1.8,4.7)	(0.5,5.2)	(1.7,7.3)	(3.9,5.5)	(4.4,9.8)	(2.5,4.7)

1 Age-specific mortality rates along with 95% Confidence Intervals shown below the rates in parenthesis
2 Figures in table are rounded to nearest integer
3 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)
4. The 'Non-occupied' category includes 'never worked, long-term unemployed, full-time students, inadequately described and unclassified for other reasons'.

Accidents from Falls, Drowning or exposure to Fire/Hot substances.

Table 6 shows that there was little difference between classes for deaths caused by falls, compared to other causes of accidental deaths.

The risk of death by drowning was consistently higher across all classes for children under five compared to children five years and over. Children whose parents were in the non-occupied group were significantly more at risk of death from drowning than those allocated to the managerial/professional class in both age groups 28 days–4 years and 5–15 years.

For mortality due to exposure to fire/hot substances, the socio-economic gradient in mortality was statistically significantly higher than the equivalent gradient for all accidents, with children aged from 28 days to 15 years in the routine/manual class being 6.9 (3.3, 14.2) times more at risk of death than children in the managerial/professional class. Those children allocated to the non-occupied group had a particularly high mortality rate, and consequently a gradient of 16.2. This high death rate for the non-occupied class was mainly driven by the rate of 28 per million in the age group 28 days–4 years.

Table 6 Age-specific mortality rates[1,2] of children from all accidents and accidents caused by falls, drowning or exposure to fire/hot substances: by 'reduced NS-SEC' and age group, 2001–03

England and Wales

Reduced NS-SEC	Age group											
	0[3]-4				5-15				0[3]-15			
	All	Falls	Drowning	Fire/Hot Substances	All	Falls	Drowning	Fire/Hot Substances	All	Falls	Drowning	Fire/Hot Substances
1 Managerial and professional	13	1	4	0	18	1	1	1	16	1	2	1
	(10,17)	(1,3)	(2,6)	(0,1)	(15,21)	(0,2)	(0,2)	(1,2)	(14,19)	(1,2)	(1,3)	(0,1)
2 Intermediate	33	2	6	2	24	0.5	2	1	27	1	3	1
	(25,43)	(1,6)	(3,11)	(1,6)	(20,29)	(0,2)	(1,4)	(0,2)	(23,31)	(0,2)	(2,5)	(0,2)
3 Routine and Manual	55	2	6	9	40	2	3	3	44	2	4	5
	(46,65)	(1,4)	(4,10)	(6,14)	(35,46)	(1,3)	(2,5)	(2,5)	(40,49)	(1,3)	(3,6)	(4,7)
'Non-occupied'[4]	117	3	14	28	62	3	3	6	76	3	6	11
	(96,141)	(1,10)	(8,25)	(19,41)	(54,72)	(1,6)	(2,6)	(4,10)	(67,85)	(2,5)	(4,9)	(8,15)
All children	38	2	6	6	30	1	2	2	33	1	3	3
	(34,42)	(1,3)	(4,8)	(4,7)	(29,33)	(1,2)	(1,3)	(2,3)	(31,35)	(1,2)	(3,4)	(3,4)
Ratio 3:1	4.2	1.1	1.7	≈10.2	2.2	1.9	3.3	3.0	2.7	1.6	2.2	6.9
	(3.1,5.8)	(0.3,4.1)	(0.8,3.5)	≈(6.7,15.5)	(1.8,2.7)	(0.7,5.1)	(1.5,7.7)	(1.3,6.6)	(2.3,3.2)	(0.7,3.3)	(1.3,3.8)	(3.3,14.2)
Ratio 'Non-occupied':1	9.0	2.2	3.9	≈30.5	3.5	3.6	3.5	5.9	4.6	2.9	3.3	16.2
	(6.5,12.5)	(0.6,9.0)	(1.9,8.2)	≈(20.6,45.1)	(2.8,4.3)	(1.3,9.9)	(1.4,9.1)	(2.6,13.3)	(3.9,5.5)	(1.3,6.5)	(1.8,6.0)	(7.9,33.2)

1 Age-specific mortality rates along with 95 per cent confidence Intervals shown below the rates in parenthesis
2 Figures in table are rounded to nearest integer
3 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)
4 The 'Non-occupied' category includes 'never worked, long-term unemployed, full-time students, inadequately described and unclassified for other reasons'
≈ Ratios and confidence limits calculated using the top limit of the 95 per cent confidence interval instead of the rate for the managerial and professional class

Accidental suffocation

The age-specific mortality rates from accidental suffocation by 'reduced NS-SEC' are reported in Table 7.

Accidental suffocation represented the main cause of death for postneonatal children: 67 per cent of accidental deaths for babies less than one year old were caused by suffocation. The socio-economic gradient was also particularly high for this age group, at 8.5 (4.0, 18.2). The highest mortality rate caused by suffocation occurred for babies under one year whose parents were non-occupied (142 per million), leading to a socio-economic gradient of 13.6 (6.0, 31.1).

Both mortality rates and social gradients were lower in other age groups. For those aged 5–9 there was no socio-economic gradient in mortality by suffocation.

Table 7 Age-specific mortality rates[1,2] of children from all accidents, accidental suffocation, and assault, by 'reduced NS-SEC' and age group, 2001-03

England and Wales

Rate per million

Reduced NS-SEC	Age group														
	0[3]–1			1–4			5–9			10–15			0[3]–15		
	All	Suffocation	Assault	All	Suffocation	Assault	All	Suffocation	Assault	All	Suffocation	Assault	All	Suffocation	Assault
1 Managerial and professional	21	10	3	11	2	2	11	1	1	24	4	1	16	3	2
	(13,34)	(5,21)	(1,10)	(8,15)	(1,4)	(1,4)	(8,15)	(0,2)	(1,3)	(20,29)	(3,6)	(0,3)	(14,19)	(2,4)	(1,2)
2 Intermediate	45	28	14	30	4	4	10	1	6	36	5	4	27	5	5
	(26,78)	(14,56)	(5,37)	(22,41)	(2,10)	(2,9)	(6,15)	(0,4)	(3,11)	(29,45)	(3,9)	(2,8)	(23,31)	(3,7)	(4,7)
3 Routine and Manual	117	89	31	41	6	6	29	1	3	49	5	3	44	8	5
	(89,155)	(64,122)	(18,54)	(33,51)	(3,11)	(3,11)	(23,36)	(0,3)	(2,7)	(42,57)	(3,9)	(2,6)	(40,49)	(7,11)	(4,7)
'Non-occupied'[4]	217	142	239	99	13	28	38	2	5	83	7	6	76	12	19
	(151,312)	(91,223)	(169,338)	(80,124)	(7,24)	(19,43)	(28,50)	(1,7)	(3,12)	(70,99)	(4,13)	(3,11)	(67,85)	(9,16)	(15,24)
All children	67	45	32	32	4	6	19	1	3	41	5	3	33	6	5
	(55,80)	(36,56)	(24,42)	(28,36)	(3,6)	(5,8)	(16,22)	(1,2)	(2,5)	(37,45)	(4,6)	(2,4)	(31,35)	(5,7)	(5,6)
Ratio 3:1	5.6	8.5	11.9	3.7	4.1	2.9	2.6	1.0	2.3	2.1	1.4	2.9	2.7	3.1	3.4
	(3.2,9.9)	(4.0,18.2)	(2.7,52.9)	(2.5,5.5)	(1.4,11.5)	(1.1,7.4)	(1.8,3.8)	(0.2,6.2)	(0.8,6.6)	(1.6,2.6)	(0.7,2.6)	(1.0,8.4)	(2.3,3.2)	(2.0,4.6)	(2.0, 5.8)
Ratio 'Non-occupied':1	10.4	13.6	91.8	8.9	8.6	13.5	3.4	3.2	3.7	3.5	1.8	5.6	4.6	4.3	12.1
	(5.6,19.1)	(6.0,31.1)	(22.0, 383.1)	(6.0,13.2)	(2.9,25.1)	(5.8,31.5)	(2.3,5.1)	(0.6,15.7)	(1.2,11.0)	(2.7,4.5)	(0.9,3.8)	(1.9,16.7)	(3.9,5.5)	(2.7,6.7)	(7.4,19.9)

1 Age-specific mortality rates along with 95% Confidence Intervals shown below the rates in parenthesis
2 Figures in table are rounded to nearest integer
3 Deaths at age 0 only include postneonatal deaths (children at least 28 days but under one year)
4. The 'Non-occupied' category includes 'never worked, long-term unemployed, full-time students, inadequately described and unclassified for other reasons'.

Assaults

Table 7 also shows the age-specific mortality rates for assault by 'reduced NS-SEC'.

The mortality of infants under one year old from assault had a large socio-economic gradient, compared to the other age groups analysed. This gradient was driven by a particularly high mortality rate from assault on post-neonatal infants allocated to the routine and manual class. The mortality rate of those in the non-occupied class was even higher at 239 per million (169,338), which gave rise to a gradient of 92 (22,383), the largest socio-economic inequality observed in this study.

The mortality rates for the older age bands were generally smaller, as were the socio-economic gradients. The exception was the mortality rate of those children aged 1–4 allocated to the non-occupied group (at 28 per million). However, despite being high, this was significantly smaller than the mortality rate of the postneonatal non-occupied group.

The gradients and the mortality rates from assault were significantly lower in the age groups 5–9 and 10–15 than in younger age groups.

Discussion

The mortality rate of children has fallen steadily since at least the 1970s, and the proportion of total deaths represented by accidents has also fallen. The 1970–72 occupational mortality decennial supplement (OPCS 1978) reported that there were just over 14,000 deaths of children 1–14 of which 33 per cent were accidents, poisonings or violence. In the current study, the number of deaths over a similar three-year period 2001–03 had reduced to 4,321, of which 18 per cent were accidents. However, accidents are still acknowledged as one of the substantial causes of death in children (The Audit Commission 2007). The Marmot Review (2010) also concluded that the single major avoidable cause of death in childhood in England was accidental death in the home for the under-fives and on the roads for the over-fives.

In the current study, accidental injury resulted in 1,016 deaths in children aged 28 days to 15 years during the period 2001–03. A further 164 deaths were attributed to assault. Our results show that although mortality rates for both accidents and assault have been decreasing overall, socio-economic inequalities remain. Those children aged at least 28 days to 15 years in the routine class had a mortality rate 4.4 times that of those in the higher managerial and professional class. The mortality rate of those in the non-occupied group was even higher, being 5.3 times that in the higher managerial and professional class. Inequalities were particularly great for deaths caused by fire/exposure to hot substances, pedestrian accidents, accidental suffocation and assault among all children. The widest inequalities in fatal accidents for individual age groups occurred for infants aged at least 28 days but under one year. The steepest socio-economic gradients found for any age-group and cause resulted from assault on infants in the non-occupied group, however the small numbers involved mean that these results should be treated with some caution.

Comparisons with previous work

Direct comparison of historical data with data in this analysis is difficult due to the changes in reporting that have occurred. The 10th revision of the International Classification of Diseases (ICD-10) was implemented in 1994, following the ICD-9 used for mortality statistics in the previous two decades.

From 2001, the National Statistics Socio-economic Classification (NS-SEC) replaced Social Class based on occupation (formerly the Registrar General's Social Class) for mortality statistics. Early studies of childhood mortality were based on the father's social class only (OPCS, 1978). Others included the mother's social class when the father's social class was unknown (Edwards *et al.,* 2006). The children in the current study are assigned to the NS-SEC of the biological or adoptive parent with the most favourable labour market position and employment status. The choice to take account of the mother's own socio-economic position reflects the changes that happened over the last 30 years, with a very high percentage of working mothers in the 21st century. The most favourable socio-economic position of the parents is likely to have a direct impact on the environment of a child, whether it derives from the mother or the father.

The 1970–72 Occupational Mortality Decennial Supplement (OPCS, 1978) found that there were marked socio-economic effects in the mortality rate for all types of accidents. Overall, children in Social Class V had a mortality rate from accidents, poisonings and violence about four times that of Social Class I in 1970–72. That study also reported particularly high gradients for falls, fire and drowning for which the Social Class V rates for males was more than ten times that of Social Class I.

The Occupational Mortality Decennial Supplement covering four years around the 1981 Census (OPCS, 1988) demonstrated similar high gradients for all accidents, and pointed out particularly high gradients for fire and pedestrian accidents for children under 10 years.

Roberts and Power (1996), using data from ONS, compared mortality rates from the early 1980s with that from the early 1990s. They concluded that socio-economic inequalities in rates of mortality from accidents and injury for children aged between 0 and 15 years increased during the 1980s. The ratio of mortality rates between social classes V and I increased from about 3.5 to 5.0. This increase was largely a result of the lack of improvement in social class V. They also reported that accidental death had increased as a proportion of all childhood deaths as a result of the rapid decline in deaths from non-external causes.

More recently Edwards *et al.* (2006) studied trends in socio-economic inequalities from the 1980s to the period 2001–03. They found similar results to Roberts and Power (1996) for the 1980s and 1990s and for 2001–03 the ratio of mortality rates of the routine to higher professional and managerial classes for children between 0 and 15 years was of the order of 5.0/1.9 = 2.6, which compares to the gradient in this study of 4.4 (3.3, 5.9). Their results are not directly comparable with the results presented here for a number of reasons.

Firstly, Edwards *et al.* (2006) classified children according to the father's socio-economic class, and then the mother's if the father's was unavailable. It is to be expected that the gradient based on the 'combined' NS-SEC should be larger. Such combined classifications have in other studies

been found to be better socio-economic discriminators of mortality (Erikson, 2006). In essence, those classified as routine under the combined classification will be a smaller group, omitting those whose mothers belong to a family with a more advantaged class, and thus would be more likely to be materially disadvantaged.

Secondly, the earlier study used death occurrences (that is, selection of deaths by the date of death) rather than registrations, and included some cause of death codes and excluded others in their definition of injury and poisoning that are not used in this current analysis.

In summary, although mortality rates for accidental injury in children have fallen considerably since the 1970s and the proportion of accidental deaths in total childhood deaths has also fallen, accidents are still one of the leading causes of death in children. Although exact comparisons with previous studies are not possible, it appears that substantial socio-economic inequalities remain in this area, particularly for the post-neonatal group (babies at least 28 days but under one year old).

The trend in death from assault is difficult to determine, owing to changes over time in the classifications of cause of death, and the time taken to reach a verdict on a number of cases. However in the current study, a very steep social gradient exists with children from the non-occupied group experiencing a rate of mortality from assault around 12 times those in the managerial and professional class. The mortality rate for those in the non-occupied group is particularly high.

The total disability and morbidity resulting from accidents is large. The Audit Commission (2007) stated that accidental injury resulted in approximately two million A&E visits each year by children under the age of 14. Since accidents might be more easily preventable than chronic disease deaths, it could be argued that reducing accidental deaths among more disadvantaged children would be an effective and timely approach to reducing social class differences in mortality and years of potential life lost.

Reducing the large inequalities between the most advantaged class and the most disadvantaged group, the non-occupied category, would make a substantial impact on childhood deaths from accidents and assaults. If the mortality rates in the latter group were the same as in the 'managerial and professional' class, deaths of infants under one year from assault would be reduced by 62 per cent. Deaths from fire, accidental suffocation and pedestrian accidents in the under-fives would be reduced by 50 per cent, 25 per cent and 28 per cent respectively. Deaths in pedestrian and transport accidents for children aged 5–15 would be reduced by 24 per cent and 16 per cent respectively.

Limitations

Historically, in studies of childhood mortality by socio-economic groups, ONS has typically focused on those children whose parents can be classified according to social class. There is a substantial group of children for whom neither parent can be classified to an occupation. It was reported in a paper by Judge and Benzeval (1993) that children in the unoccupied class have the worst mortality of all social groups for all causes of death, and that the unoccupied class largely consists of economically inactive single mothers.

The current study clearly indicates that children whose parents are not classified according to an occupation had consistently higher mortality rates than children with at least one parent with an occupation, for all causes of accidental death studied and for assault. However, there is no distinction made in the current work between unoccupied and inadequately described categories, who may have a different mortality pattern, as suggested by Judge and Benzeval (1993). The non-occupied in the current study encompass a broad range of parents, including those who are long-term unemployed or have never worked (the unoccupied); full-time students; those whose occupations were either not given or inadequately described for classification purposes; or whose occupations were not classifiable for other reasons.

The population of children whose parents are not classified according to an occupation (the non-occupied) accounts for 12 per cent of all children of which 69 per cent are living with a single parent, mostly with a single mother. In this study, 28 per cent of all accidental deaths reported for children in the non-occupied category did not have any recorded information on the father's occupation and 66 per cent of all accidental deaths for children in the non-occupied category were of children with both parents having an occupation not stated, inadequately described or not classifiable for other reasons. However, it is not possible to identify from death registrations how many child deaths in the non-occupied category were of children living with a single parent. Indeed, the occupation of both biological or adoptive parents could be recorded even if the child was living with only one of the biological or adoptive parents. Children of single parents in the non-occupied class are likely to be at higher risk of accidental death or death from assault than other children, as previously suggested by Judge and Benzeval (1993). However, this work cannot prove this fact with certainty.

The population of children classified according to the parental socio-economic classes in the period 2001–03 was based on the 2001 Census. Therefore this study does not take account of any change in the composition of the population, social mobility or population growth during the period 2001–03.

Only the socio-economic class of the biological or adoptive parent was taken into account. This might have introduced a bias as it does not necessarily reflect the contribution of step-parents to the material circumstances of the family.

The age range chosen was limited to 28 days–15 years, since above the age of 15 the person's own occupation rather than the parental occupation is recorded at death registration. Also, at death registration, the father's last full-time employment is recorded. Therefore if the father is long-term unemployed after a period of employment, this will not appear on the child death certificate, as it would at census.

In some of the findings presented the number of underlying deaths was small, leading to wide confidence intervals. This may lead to a degree of uncertainty in the interpretation of the resultant socio-economic gradients. However, the authors have been careful not to draw stronger conclusions than seem merited by the estimates.

Conclusions

This analysis presents age specific mortality rates by combined NS-SEC for selected accidents and assaults among children age at least 28 days to 15 years in England and Wales in the period 2001–03. It confirms results from previous studies showing a general pattern of steady decline in mortality from accidents and assaults. However, the results also showed that a substantial and clear social gradient in child mortality arising from accidents and assault persisted.

The study found that children aged 28 days to 15 years in the routine class had a mortality rate from accidents 4.4 times that of those in the higher managerial and professional class. Those children whose parents could not be allocated an occupied NS-SEC class had an even higher mortality rate, more than five (5.3) times the rate of the more advantaged children.

There were differences in socio-economic gradients by both cause of death and age group. The steepest socio-economic gradients observed for all childhood accidents was for those over 28 days but under one year old, the post-neonatal group. Considering accident type for all children, the highest socio-economic gradients were for fire and pedestrian accidents, followed by accidental suffocation. Assault for children whose parents could not be allocated an occupied NS-SEC class also had a very high gradient. The socio-economic gradient for accidental suffocation was highest for children less than one year old, while the gradients for death by exposure to fire, flame or hot substances were higher for those under five than for older children.

Childhood accidental mortality is acknowledged as the tip of the iceberg of the total harm done to children by accidents and assaults, with much disability and morbidity for each death, and childhood accident mortality has a disproportionate impact on years of potential life lost. This analysis seems to suggest that reducing inequalities in pedestrian accidents in children under fifteen and accidental suffocation, accidental exposure to fire/hot substances and assault for the under-fives, and particularly those under one year, would have the largest impact on narrowing the existing social inequalities in fatal childhood accidents and assaults.

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Inequalities in disability-free life expectancy by area deprivation: England, 2001–04 and 2005–08

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Abstract

Background

The reduction of health inequalities is a long-standing public health priority. Accurate and timely measurement of the magnitude of health inequalities over time is complex, often relying on data available from a decennial census to conduct detailed analyses of social and geographical inequalities. While inequalities in mortality rates and life expectancy are well-established, the scale of inequality in health expectancies has been reported to be even greater. This study examines changes in inequality in disability-free life expectancy (DFLE) over time between Lower Super Output Areas (LSOAs) in England, grouped into quintiles of an area-based measure of relative deprivation.

Methods

Life expectancy (LE) and DFLE for males and females at birth and at age 65 were estimated using a combination of survey, mortality and population data; survey data provided an estimate of the prevalence of limiting long-standing illness or disability (LLSI) used in the DFLE metric. An estimate of the inequality in DFLE between area-based quintiles of relative deprivation (using the Index of Multiple Deprivation 2007) in the periods 2001–04 and 2005–08 enabled the measurement of change in equality over time between advantaged and disadvantaged areas.

Results

The prevalence of LLSI among males and females rose incrementally with increasing levels of deprivation in both periods. Males and females in the most deprived areas were more than 1.5 times more likely to report LLSI compared to those in the least deprived areas. There were also large inequalities in LE and DFLE in a similar pattern to LLSI. The extent of inequality in DFLE between the most and least deprived quintiles was approximately twice that of LE. Although LE and DFLE generally increased over time, this improvement varied across quintiles, causing the gap between the most and least deprived quintiles to increase. In comparison with more advantaged areas, people experiencing the greatest deprivation spent the greatest proportion of their lives with a limiting illness or disability, and this proportion increased over time.

Conclusions

Males and females at birth and at age 65 in the less deprived areas could expect longer, healthier lives than their counterparts in more deprived areas in both 2001–04 and 2005–08. This analysis suggests that the inequality in DFLE between deprived and affluent area clusters has increased during the first decade of the 21st century.

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Introduction

Health expectancies (HEs) provide estimates of life spent in various states of health. As such, they add an extra, more qualitative, dimension to life expectancy (LE) figures and are used in the assessment of need for health and social care, the impact of policies designed to reduce health inequalities, the likely proportion of the working age population fit for work at a given age, and the fairness of increases in the state pension age.

Of particular importance is the extent of inequality in health these measures convey. The reduction in health inequalities remains an important public health concern, and the Strategic Review of Health Inequalities in England post-2010 (Marmot, 2010), estimated that 2.8 million person-years free of limiting illness or disability could be gained if everyone in England experienced the same rates of death and limiting illness as the fifth of the population living in the most advantaged group of small areas. The report concluded that such a gain would bring clear economic as well as social benefits, in terms of improved productivity, lower welfare payments and healthcare costs, and increases in revenue (Marmot, 2010). It also highlighted the substantial differences in the LE and disability-free life expectancy (DFLE) of people based on the income deprivation level of their neighbourhoods; those in the poorest neighbourhoods will, on average, die seven years earlier than those in the richest, while the average difference in DFLE between these areas is 17 years (Marmot, 2010).

A number of studies (Olatunde *et al.*, 2010; Smith *et al.,* 2010a; White and Edgar, 2010; ONS, 2006) comparing small population groupings based on social class and lower level geographies have shown that the inequalities in HEs at sub-national levels are much more pronounced than those between the constituent countries of the UK. However, these analyses require survey data sources that have sufficiently large sample sizes to allow computation of robust HE metrics for sub-national populations. While the decennial census of population has been used extensively in estimating HEs for different sub-national population groupings, the infrequent nature of the census means that these analyses can only be updated every 10 years. More frequent investigations using survey sources that align closely with the census-based measures of health status can provide more timely information on the direction of health inequalities during the inter-censal years.

This report aims to address the relative shortage of information on inequalities in sub-national health expectancies during the inter-censal years by comparing the DFLE in Lower Super Output Area (LSOA) geographies, grouped into quintiles of relative deprivation in two time periods during the first decade of the 21st century.

Background

DFLE divides expected years of life into those spent with and without a limiting long-standing illness or disability.

Although the relationship between DFLE and measures of material advantage is well established, measuring and monitoring these inequalities in sub-national populations is complex and often restricted by the availability of sufficiently detailed and timely information from survey data sources.

For example, a recent study showed a gap of up to 12.6 years in DFLE between the least and the most deprived fifth of Middle Super Output Areas (MSOAs) in England (Olatunde *et al.,* 2010). However, analysis at this fine grained level is currently restricted to data derived from the decennial Census 2001, and thus has limited application in monitoring health inequalities during the inter-censal period.

In another recent study (Smith *et al.,* 2010a) we demonstrated the potential of the General Household Survey/General Lifestyle module of the Integrated Household Survey (GLF) to provide a reliable inter-censal measure of DFLE for LSOA geographies, grouped into quintiles of relative deprivation based on the Index of Multiple Deprivation 2004 (IMD, 2004).

In this study we update this approach, using the more recent IMD (2007) and compare two four-year time periods, 2001–04 and 2005–08, to assess any change in the inequality in LE and DFLE that may have occurred during the first decade of the 21st century.

Methods

The prevalence of self-reported limiting long-standing illness or disability among males and females resident in private households in England was compared across LSOA quintiles of relative deprivation and over time. Data were aggregated over two four-year periods (2001–04 and 2005–08) in order to achieve sufficiently large sample sizes to enable meaningful statistical comparison. Prevalence data were combined with mortality and mid–year population estimates (MYPE) over the same periods to calculate estimates of LE and DFLE at birth and at age 65 for males and females in each deprivation quintile. Slope and Relative indices of inequality (SII and RII respectively) were used to assess the absolute and relative inequality in DFLE between the least and most deprived quintiles. These indicators measure the total impact of inequality in DFLE, by taking into account the inequalities in intervening quintiles of relative deprivation.

Boxes 1, 2, 3, 4 and 5 provide brief descriptions of the measure of deprivation, survey data and methods used in this analysis.

Box 1 Area deprivation

The Index of Multiple Deprivation 2007 (IMD, 2007) combines seven distinct domains of data to produce a single measure of relative deprivation for each LSOA in England; similar measures have also been constructed for Wales, Northern Ireland and Scotland (Noble *et al.*, 2001, 2003; National Assembly for Wales, 2005). LSOAs are relatively homogenous in terms of population size and structure; each has approximately 1,500 residents. The 32,482 LSOAs in England can be ranked according to their IMD 2007 scores and grouped for subsequent analyses. Such groupings represent a continuum of relative deprivation but are likely to have a significant degree of heterogeneity, such that (for example) those at the bottom of group 1 could be more closely related to those at the top of group 2 than those at the top of group 1.

The IMD has been criticised as conceptually problematic when used in health-related studies as it includes health as one of its domains of deprivation (Morgan and Baker, 2006). Therefore, measurements of health using the IMD as a geographical anchor may potentially suffer from mathematical-coupling where the integral health domain of the IMD biases the relationship with the health outcome under investigation. Recent studies however, have found little evidence to support this effect, concluding that the presence or absence of the health domain in the IMD has little or no effect in biasing the relationship between health and deprivation, particularly with regard to general health, limiting chronic illness and/or mortality as outcome measures (Adams and White, 2006; Gartner *et al.*, 2008).

Box 2 Survey data

The sources of survey data used in this analysis were the General Household Survey (GHS) 2001–04 and the General Lifestyle Survey/Module (GLF) 2005–08. In essence the GHS and GLF represent a single data source; however in 2005 the survey changed from a cross-sectional to a rotating-panel longitudinal design becoming the General Household Survey Longitudinal (GHS (L)). The name of the survey was subsequently changed to the GLF in 2008 when it became a component of the Integrated Household Survey (IHS). For consistency, the survey data source is referred to as GLF throughout this article. In 2006 the survey weighting was revised to account for potential attrition or non-response bias in subsequent panels of repeat respondents. Investigation has shown that this weighting adequately compensates for bias in self-reported limiting long-standing illness or disability (Smith *et al.*, 2010b). The GLF has been identified as a suitable data source to monitor health inequalities between census years (Smith *et al.*, 2010a).

Each survey data record was mapped to an LSOA level geographical boundary using a postcode identifier look-up table, and assigned to the relevant quintile of the IMD 2007 based on the overall deprivation score for that area. These were aggregated over two four-year periods, 2001–04 and 2005–08 to provide a sufficiently large sample for calculating DFLE estimates for each quintile of relative deprivation by age and sex. The distribution of survey data across deprivation quintiles was not even, ranging between 17 and 23 per cent across the two time periods (see table 1).

Table 1 Number and distribution of respondents to the GLF: by area deprivation quintile, 2001–04 and 2005–08

England — Number, Percentages

Deprivation quintile	2001–04		2005–08	
	Persons	Per cent	Persons	Per cent
Males				
1 – least deprived	7,586	*21.4*	8,561	*23.3*
2	7,155	*20.2*	8,494	*23.1*
3	7,199	*20.3*	6,615	*18.0*
4	6,643	*18.8*	6,848	*18.7*
5 – Most deprived	6,827	*19.3*	6,180	*16.8*
Total	35,410	..	36,698	..
Females				
1 – least deprived	7,862	*20.8*	9,127	*22.6*
2	7,539	*19.9*	9,239	*22.9*
3	7,825	*20.7*	7,330	*18.2*
4	7,152	*18.9*	7,575	*18.6*
5 – Most deprived	7,465	*19.7*	7,061	*17.5*
Total	37,843	..	40,332	..

Box 3 Limiting long–standing illness or disability?

The prevalence of a limiting long-standing illness or disability by sex and five-year age band was derived from responses to the following questions:

'Do you have any long-standing illness, disability or infirmity – by long-standing I mean anything that has troubled you over a period of time or that is likely to affect you over a period of time?'

(1) Yes

(2) No

If 'Yes' the respondent is then asked;

Does this illness or disability (Do any of these illnesses or disabilities) limit your activities in any way?

(1) Yes

(2) No

In this analysis, people responding 'Yes' to both questions were identified as having a limiting long-standing illness or disability.

Box 4 Disability-free life expectancy (DFLE)

DFLE partitions LE into estimated periods of life with and without a limiting long-standing illness or disability. This measure is calculated using the Sullivan method which combines the prevalence of limiting long-standing illness or disability (see Box 3), with mortality data and mid-year population estimates (MYPE) (Sullivan, 1971; Jagger, 1996). For these analyses, all data were aggregated over the four-year periods 2001–04 and 2005–08. MYPEs were adjusted to match the private household population by subtracting numbers resident in communal establishments; however, the mortality data represents the entire population of England.

Box 5 Slope and Relative indices of inequality

To calculate the slope and relative index of inequality:

The quintiles were ordered by decreasing area deprivation, that is, from the most to the least deprived. The fraction of the total population in each quintile (f) was calculated. The cumulative frequency (c_i), that is the cumulative sum of the population in successively less deprived quintiles, was also obtained and the relative deprivation rank (x) for each quintile was calculated as:

$$x = c_{i-1} + (0.5 \times f)$$

The SII (slope of the regression line) was then estimated by regressing DFLE for each quintile against the relative deprivation rank (x), weighted by the population in each quintile.

The RII was calculated using the method described by Mackenbach and Kunst (1997). First, the predicted value of DFLE (y) for the least deprived areas, taking into account its relative deprivation rank, was estimated using a linear regression model. Then the SII was divided by the predicted DFLE value, (SII / y). The result obtained represents the ratio of the DFLE of the most deprived areas to that of the least deprived. This was then expressed as a rate ratio by adding 1 to it, giving the modified RII.

$$\text{Modified RII} = 1 + (\text{SII} / y)$$

Results

Prevalence of limiting long-standing illness or disability (LLSI), 2001–04 and 2005–08

LLSI increased with rising deprivation for both sexes in each time period (see table 2).

Table 2 **Prevalence of limiting long–standing illness in England: by area deprivation quintile, 2001–04 and 2005–08**

England

Percentages

Deprivation quintile	2001–2004		2005–2008	
	Males	Females	Males	Females
1 – least deprived	13.6	15.8	13.6	16.3
2	16.2	18.5	15.4	16.9
3	16.9	18.1	16.2	19.2
4	19.4	20.7	17.1	20.3
5 – Most deprived	22.7	24.1	23.0	24.2
Ratio (5/1)	1.7[1]	1.5[1]	1.7[1]	1.5[1]
95% CI of ratio	1.6–1.7	1.5–1.6	1.6–1.8	1.4–1.5
England	17.7	19.4	16.8	19.2

1 Significant difference between males and females

In 2001–04 the prevalence of LLSI among males was 13.6 per cent in the least deprived areas. In contrast, LLSI affected 22.7 per cent of males in the most deprived areas. For females the equivalent figures were 15.8 and 24.1 per cent respectively. LLSI was therefore 1.7 times higher in males and 1.5 times higher in females in the most compared to the least deprived areas. LLSI among females was approximately 1–2 per cent higher than for males in each quintile in this period. This difference between the sexes was also evident at national level where the average prevalence of LLSI was 17.7 per cent for males and 19.4 per cent for females. Estimates for England fell between quintiles 3 and 4 for males and females in both time periods.

In 2005–08 the deprivation gradient in LLSI prevalence was similar to that observed in 2001–04 (Table 2). The prevalence of LLSI in males decreased between the two periods in quintiles 2 to 4. LLSI remained consistent in the least deprived areas and increased slightly in the most deprived. The most notable improvement was in quintile 4 where LLSI decreased by approximately 2.3 per cent. For females, there was no clear pattern in the prevalence of LLSI over time. While improvements were observed in quintiles 2 and 4, LLSI increased in quintiles 1, 3 and 5. The greatest reduction in LLSI was observed in quintile 2, where prevalence decreased by 1.6 per cent between the two periods, while the prevalence in quintile 3 worsened by 1.1 per cent. Changes in the remaining quintiles were less pronounced and less than 1 per cent over the period.

The likelihood (rate ratio) of reporting an LLSI between the least and most deprived areas remained largely constant for males and females over time, and was higher for males than for females; 1.7 and 1.5 respectively.

For England as a whole there were improvements in LLSI prevalence rates for both sexes between 2001–04 and 2005–08, however this was more pronounced among males than females; LLSI reduced by 0.9 per cent and 0.2 per cent respectively.

Disability-free life expectancy

For each time point LE and DFLE fell with increasing deprivation for both sexes (see tables 3, 4, 5 and 6). Males and females at birth and at age 65, in the least deprived areas, could therefore, expect longer, healthier lives than their counterparts in more deprived areas in both 2001–04 and 2005–08.

Males at birth

Table 3 **LE and DFLE for males at birth: by area deprivation quintile, 2001–04 and 2005–08**

England — Years, Percentages

Deprivation quintile	2001–04				2005–08			
	LE	DFLE	95 per cent CI	Proportion of life disability free (%)	LE	DFLE	95 per cent CI	Proportion of life disability free (%)
1 – Least deprived	79.7	67.9	67.2–68.5	*85.2*	81.0	69.3[1]	68.7–69.9	*85.5*
2	78.3	65.0	64.4–65.7	*83.0*	79.7	66.6[1]	66.0–67.2	*83.5*
3	77.1	63.5	62.9–64.2	*82.4*	78.4	65.1[1]	64.4–65.7	*83.0*
4	75.1	59.6	58.9–60.3	*79.3*	76.3	62.1[1]	61.4–62.8	*81.4*
5 – Most deprived	71.9	54.0	53.3–54.7	*75.1*	73.0	54.7	53.9–55.4	*74.8*
Range	7.8	13.8	12.9–14.8	:	8.0	14.6	13.7–15.6	:
Ratio	1.11	1.26	: :	:	1.11	1.27	: :	:
SII	9.4	16.5	: :	:	9.7	16.2	: :	:
RII	1.12	1.24	: :	:	1.12	1.23	: :	:

1 Significant difference in DFLE between 2001–04 and 2005–08

Differences between cells may not match due to rounding

In 2001–04 males in the least deprived areas could expect an additional 7.8 years of life compared with those in the most deprived areas; 79.7 and 71.9 years respectively. The difference between these areas in terms of DFLE was even more striking; those in the least deprived areas having 13.8 more years free from LLSI than their counterparts in the most deprived areas (67.9 and 54.0 years respectively). In relative terms, those in the least deprived areas had a DFLE 1.26 times higher than those in the most deprived. As shown in Table 3, the absolute difference in DFLE between quintile extremes, as measured by the SII, is greater than that measured by the range in DFLE between these areas. For males at birth in 2001–04, the gap in DFLE between the least and most deprived areas, as measured by the SII, was 16.5 years while the modified RII was 1.24.

When DFLE is assessed as a proportion of LE, those in the least deprived areas could expect to spend approximately 85 per cent of their lives free from LLSI, whereas those in the most deprived areas could expect to spend approximately three-quarters (75.1 per cent) of their lives without LLSI.

The gap in LE and DFLE between quintiles was most pronounced between the two most deprived groups of areas, that is quintiles 4 and 5, where the difference accounted for approximately 41 per cent of the total range in LE and DFLE.

Between 2001–04 and 2005–08 improvements were seen in LE and DFLE across all quintiles, but to varying extents. While the least and most deprived areas saw increases in LE of 1.4 and 1.1 years respectively, the corresponding increase in DFLE in the least deprived areas was more than twice that of the most deprived (1.4 and 0.6 years respectively). Thus, for the most deprived, the gain in LE was not matched by that of DFLE, leading to a slight decline (0.3 per cent) in the proportion of life spent without LLSI. In all other quintiles there were improvements of between 0.3 and 2.1 per cent in the proportion of life spent free from a disability, the greatest being in quintile 4. The range in LE between the least and the most deprived areas rose slightly from 7.8 years in 2001–04 to 8.0 years in 2005–08, while the corresponding range in DFLE increased from 13.8 to 14.6 years. The ratio between these areas increased slightly over the period from 1.26 to 1.27.

Taking into account the inequalities in intervening quintiles of relative deprivation, the SII and RII indicated a slight decrease in absolute and relative inequality in DFLE; falling from 16.5 years to 16.2 years and 1.24 to 1.23 respectively over the period.

In 2005–08 the difference in DFLE between quintiles 4 and 5, the two most deprived areas, accounted for slightly more than half (50.9 per cent; 7.4 years) of the total range between quintile extremes compared with 40.5 per cent (5.6 years) in 2001–04. The exceptional gain in DFLE in quintile 4 ensured that the inequality between them and those in the most affluent areas narrowed over time, from 8.3 to 7.2 years.

Males at age 65

Table 4 LE and DFLE for males at age 65: by area deprivation quintile, 2001–04 and 2005–08

England

Years, Percentages

Deprivation quintile	2001–04				2005–08			
	LE	DFLE	95 per cent CI	Proportion of life disability free (%)	LE	DFLE	95 per cent CI	Proportion of life disability free (%)
1 – Least deprived	18.0	11.9	11.4–12.4	*65.8*	19.3	12.9[1]	12.5–13.3	*66.9*
2	17.3	10.8	10.3–11.3	*62.7*	18.4	11.4	10.9–11.8	*61.7*
3	16.7	10.1[2]	9.7–10.6	*60.8*	17.8	11.2[1,2]	10.8–11.7	*63.1*
4	15.7	8.9	8.5–9.4	*56.9*	16.7	9.6	9.2–10.1	*57.7*
5 – Most deprived	14.5	7.7	7.2–8.2	*53.0*	15.3	7.3	6.9–7.8	*47.9*
Range	3.5	4.2	3.5–4.9	:	4.0	5.6[1]	4.9–6.2	:
Ratio	1.24	1.55	: :	:	1.26	1.76	: :	:
SII	4.2:	5.0	: :	:	4.6	6.0	: :	:
RII	1.23:	1.41	: :	:	1.24	1.46	: :	:

1 Significant difference in DFLE between 2001–04 and 2005–08

2 Not significantly lower than next less deprived quintile

Differences between cells may not match due to rounding

In 2001–04 men at age 65 living in the least deprived areas could expect to live a further 18.0 years, compared with only 14.5 years for those in the most deprived areas – a difference of 3.5 years. In the case of DFLE, men in the least deprived areas could expect to spend 11.9 years without LLSI compared with 7.7 years for those in the most deprived – a difference of 4.2 years. In relative terms DFLE was 1.55 times higher in the least compared to the most deprived areas. Again, much of the overall differences in LE and DFLE across the quintiles was accounted for by the gap between quintiles 4 and 5; which accounted for approximately 34 per cent; 1.2 years (LE) and 31 per cent; 3.5 years (DFLE) of the range between the extremes of deprivation. With respect to DFLE as a proportion of LE, men in the least deprived areas could expect to spend 65.8 per cent of their remaining life without LLSI, compared with 53.0 per cent for those in the most deprived areas.

As at birth, the SII (5.0 years) for men at age 65 was greater than the range (4.2 years), while the modified RII was 1.41.

In 2005–08 LE for men aged 65 increased in all areas compared to 2001–04. As at birth however, increases varied across quintiles. In the least deprived areas, LE rose by 1.3 years to 19.3 years whereas in the most deprived areas this increase was 0.8 years to 15.3 years. This variation resulted in a widening of the gap in LE between these areas from 3.5 years in 2001–04 to 4.0

years in 2005–08. DFLE also increased in all quintiles other than the most deprived compared to 2001–04. In the least deprived areas DFLE rose by 1.0 year to 12.9 years; by contrast, in the most deprived areas DFLE decreased by 0.3 years to 7.3 years, causing the range to increase significantly from 4.2 to 5.6 years over time. Consequently, the ratio of DFLE between the least and most deprived areas increased from 1.54 to 1.76. As in 2001–04, the greatest proportion of the range in both LE and DFLE was accounted for by the difference between quintiles 4 and 5; approximately 35 per cent (1.4 years) and 41 per cent (2.3 years) of the total respectively

In terms of the proportion of life spent free from a disability at age 65, men in the least deprived areas could expect to spend 66.9 per cent of their lives disability-free, a 1.1 per cent increase on 2001–04 while men in the most deprived areas could expect to spend less than half (47.9 per cent) of their remaining life disability-free, a fall of 0.3 per cent.

The absolute difference in DFLE between the least and most deprived areas, as measured by the SII, was 6.0 years compared with 5.0 years in 2001–04. The modified RII also rose from 1.41 to 1.46.

Females at birth

Table 5 **LE and DFLE for females at birth: by area deprivation quintile, 2001–04 and 2005–08**

England — Years, Percentages

Deprivation quintile	2001-04				2005-08			
	LE	DFLE	95 per cent CI	Proportion of life disability free (%)	LE	DFLE	95 per cent CI	Proportion of life disability free (%)
1 – Least deprived	83.0	69.2	68.5–69.8	*83.3*	84.2	70.3	69.7–70.9	*83.5*
2	82.1	67.0	66.3–67.7	*81.6*	83.1	68.5[1]	67.9–69.1	*82.4*
3	81.3	66.2[2]	65.5–66.9	*81.4*	82.3	65.9	65.2–66.6	*80.1*
4	79.9	62.5	61.8–63.2	*78.2*	80.9	63.4	62.7–64.1	*78.4*
5 – Most deprived	77.8	57.6	56.9–58.4	*74.1*	78.6	57.9	57.1–58.6	*73.6*
Range	5.2	11.6	10.5–12.6	:	5.6	12.4	11.4–13.4	:
Ratio	1.07	1.20	: :	:	1.07	1.21	: :	:
SII	6.3	13.7	: :	:	6.7	14.6	: :	:
RII	1.08	1.20	: :	:	1.08	1.20	: :	:

1 Significant difference in DFLE between 2001–04 and 2005–08

2 Not significantly lower than next less deprived quintile

Differences between cells may not match due to rounding

In 2001–04 females at birth in the least deprived areas could expect 5.2 more years of life than those in the most deprived areas; 83.0 and 77.8 years LE respectively. In terms of DFLE, females at birth in the least deprived areas could expect 69.2 years of life without LLSI compared with 57.6 years in the most deprived areas. In absolute terms, the range in DFLE between the least and most deprived areas, 11.6 years, was more than twice that of LE and the ratio of DFLE between these areas was 1.20. Proportionally, those in the least deprived areas could expect to spend almost 17 per cent of their lives with LLSI, whereas those in the most deprived areas could expect to spend more than a quarter (25.9 per cent) of their lives with LLSI. As with males, the gap in LE and DFLE between quintiles for females was most pronounced between quintiles 4 and 5. The difference between these two most deprived quintiles accounted for 40.9 per cent (2.1 years) and 42.4 per cent (4.9 years) of the total range in LE and DFLE respectively.

The SII showed an absolute difference of 13.7 years between the DFLE of the least and most deprived areas while the modified RII was 1.20.

Compared to 2001–04, LE for females at birth rose in each quintile in 2005–08. Increases in LE were greatest in the least deprived areas (1.1 years) and lowest in the most deprived areas (0.8 years), causing the range in LE between these areas to increase from 5.2 years to 5.6 years. DFLE also increased in each quintile over the period, with the exception of quintile 3 where it fell slightly. The increase in DFLE for the least deprived areas (1.1 years) was more than three times that of the most deprived areas (0.3 years). Consequently, the range and ratio in DFLE between these areas increased from 11.6 years to 12.4 years and 1.20 to 1.21 respectively. Again, much of the range was accounted for by differences between quintiles 4 and 5, 40.6 per cent (5.5 years) of the overall difference.

In 2005–08 the SII in DFLE between quintiles extremes was greater than in 2001–04, 14.6 years, while the modified RII remained constant at 1.20.

Females at age 65

Table 6 LE and DFLE for females at age 65: by area deprivation quintile, 2001–04 and 2005–08

England

Years, Percentages

Deprivation quintile	2001–04				2005–08			
	LE	DFLE	95 per cent CI	Proportion of life disability free (%)	LE	DFLE	95 per cent CI	Proportion of life disability free (%)
1 – Least deprived	20.6	13.3	12.8–13.8	*64.5*	21.6	13.8	13.4–14.3	*63.9*
2	20.0	12.8[1]	12.3–13.2	*63.9*	20.9	13.3[1]	12.8–13.8	*63.7*
3	19.6	12.3[1]	11.8–12.8	*62.7*	20.4	12.0	11.5–12.5	*59.0*
4	18.8	10.6	10.1–11.1	*56.5*	19.6	10.8	10.3–11.3	*55.0*
5 – Most deprived	17.8	9.3	8.8–9.8	*52.3*	18.4	9.4	8.9–9.9	*51.2*
Range	2.8	4.0	3.3–4.7	:	3.3	4.4	3.7–5.1	:
Ratio	1.16	1.43	: :	:	1.18	1.47	: :	:
SII	3.3	4.9	: :	:	3.7	5.5	: :	:
RII	1.16	1.36	: :	:	1.17	1.38	: :	:

1 Not significantly lower than next less deprived quintile

Differences between cells may not match due to rounding

In 2001–04 women living in the least deprived areas could expect an additional 20.6 years of life at age 65, compared with 17.8 years for those in the most deprived – a difference of 2.8 years. In the same period the equivalent DFLE figures were 13.3 and 9.3 years respectively – a difference of 4.0 years – while the ratio was 1.43. Much of the differences between quintile extremes were again accounted for by the gap between quintiles 4 and 5; 37.0 per cent (1.0 year) and 33.2 per cent (1.3 years) of the overall difference in LE and DFLE respectively. In proportional terms, women in the least deprived areas could expect to spend 64.5 per cent of their remaining life without LLSI, compared with 52.3 per cent for those in the most deprived areas.

The SII in DFLE between the least and most deprived areas was 4.9 years and the modified RII was 1.35.

Compared with 2001–04, LE in 2005–08 was higher for women at age 65 in each quintile. Increases in LE for women aged 65 were greatest in the least deprived areas (1.0 years) and lowest in the most deprived areas (0.6 years). Consequently, the range in LE between these areas increased from 2.8 years in 2001–04 to 3.3 years in 2005–08. DFLE for women aged 65 also increased in all but quintile 3. The greatest increases in DFLE (0.5 years) were seen in deprivation quintiles 1 and 2, while the smallest (0.1 years) was in the most deprived quintile. The range in DFLE between the least and most deprived areas therefore increased from 4.0 years in 2001–04 to 4.4 years in 2005–08, and the ratio increased to 1.46. As in 2001–04, the range in LE and DFLE between quintile extremes was made up to a large extent by differences between quintiles 4 and 5,

approximately 37 per cent (1.2 years for LE and 1.4 years for DFLE) of the overall differences. The SII shows that the absolute difference in DFLE between the least and most deprived areas worsened over time; 4.9 to 5.5 years in 2005–08, while the modified RII increased to 1.38.

Across all quintiles, the proportion of life that women at age 65 could expect to spend without LLSI fell slightly in 2005–08 compared with 2001–04 (Table 6).

Differences in DFLE by sex

DFLE was generally significantly higher for females than for males. In 2001–04 there was a single instance where this was not the case; at birth in the least deprived quintile. In 2005–08 the number of area clusters in which differences by sex were no longer significant had increased; DFLE was not significantly different between males and females at birth in quintiles 1, 3 and 4.

Discussion

This report explores changes in health inequalities over time, between groupings of small areas based on differing levels of deprivation and provides further evidence of the effect relative deprivation has on life chances and functional health status. These results are consistent with a widening of health inequality between advantaged and disadvantaged populations during the first decade of the 21st century.

The prevalence of LLSI varied substantially between the least and most deprived areas for both males and females: those living in the most deprived areas in England were at least 1.5 times more likely to report an LLSI than their counterparts living in the least deprived areas in each period examined, demonstrating the strong relationship between local area deprivation and limiting illness.

Over time, a reduction in the prevalence of LLSI in males occurred in quintiles 2 to 4, demonstrating the scope for health improvement in populations with already lower rates of limiting illness, and the potential for substantial reductions in LLSI in deprived areas with higher baselines. For females the picture over time was less clear – those in the least deprived quintile experienced a slight rise in the prevalence of LLSI, while there was little change for those in the most deprived quintile.

LE and DFLE for males and females at birth and at age 65 in both 2001–04 and 2005–08 decreased with increasing levels of deprivation in a linear pattern.

In 2001–04 males at birth in the least deprived areas would, on average, live for an additional 7.8 years more than their counterparts in the most deprived areas. For females, this gap was narrower at 5.2 years. Over time, the inequality in LE increased for both sexes but the difference by sex narrowed. For DFLE however, the magnitude of inequality between the least and most deprived areas was much greater in each time period. At birth the total inequality in DFLE was more than twice as great as that of LE for females and almost twice as great for males.

Between the two time periods, inequalities in DFLE increased by more than half a year for males and females at birth. Strikingly, in the most deprived areas, males and females at birth could

expect to spend approximately a quarter or more of their lives with LLSI, compared with approximately 15 per cent for those in the least deprived areas.

At age 65 the inequalities in LE and DFLE persist. For LE, 3.5 years separated men in the least and most deprived areas in 2001–04 and this increased to 4.0 years in 2005–08. For women, the gap in LE between these areas also increased from 2.8 to 3.3 years. Inequality in DFLE at age 65 was again greater than that for LE and increased by more than a year for men and almost half a year for women over the period.

On the whole, there were significant differences in DFLE between adjacent quintiles, particularly at birth. By quintile, the greatest inequality in LE and DFLE lay between the most deprived and next most deprived quintiles. The difference in DFLE between these quintiles represented between a third and almost a half of the inequality between the least and most deprived areas. At birth, the inequality in DFLE between these quintiles increased for both males and females. Those in the most deprived areas appear to be becoming comparatively more disadvantaged over time. While males in quintile 4 closed the gap on less deprived areas, as a result of a sharper rise in DFLE compared to other areas, for females this gap widened slightly over time.

These findings demonstrate the importance of relative compared to absolute deprivation as a marker for health outcomes.

While simple measures of the absolute and relative difference in DFLE between quintile extremes, (such as the range and ratio) have the advantage of being simple to calculate and easy to interpret, they do not take into account the inequalities in intervening quintiles of relative deprivation. The slope and relative indices of inequality (SII and RII) were therefore used to explore the total impact of deprivation-related inequality on DFLE. These indices not only take into account the size of each deprivation group, but also their relative position in the 'deprivation hierarchy'. The results obtained can be interpreted as the difference in DFLE between the most and least deprived areas, estimated on the basis of the systematic relationship between DFLE and area deprivation for all deprivation quintiles.

In general, the magnitude of inequality in DFLE as demonstrated by the SII was greater than that measured by the range between quintile extremes. However, both measures had a similar pattern by sex with inequalities being greater for males than for females. Furthermore, with the exception of males at birth, the direction of inequality was found to be consistent for both measures: the gap between the least and most deprived fifth of the population in England increased in the latter period of the first decade of the 21st century. Males at birth were the only group to experience a slight narrowing of the inequality gap over the two periods.

The ratio and the relative index (RII) suggest that inequality at birth for both males and females has remained largely consistent over time. At age 65 however, these measures indicate that inequality has increased over the period, particularly for males. The ratio and relative index also suggest that deprivation has a greater impact on health inequality at older ages, as there is a much greater disparity in DFLE between quintiles at age 65 than at birth.

This study adds to the growing body of evidence that links increased deprivation with poorer health. Many recent studies illustrate the wide margins of health inequality that exist between small

areas experiencing differing degrees of deprivation (Bajekal, 2005; Rasulo *et al.*, 2007; Smith *et al.*, 2010a; Olatunde *et al.*, 2010).

The findings presented here provide, for the first time, an analysis of DFLE by IMD 2007 quintiles of deprivation. They are consistent with a widening of health inequality during the first decade of the 21st century, in absolute terms for males and females at birth and in both absolute and relative terms at age 65. Much of this apparent widening is due to disproportionate increases in LE, DFLE and in reductions in LLSI across quintiles of deprivation. The most deprived areas experienced the smallest increases in LE and DFLE compared to the other area groupings examined, causing them to fall further behind in 2005–08 compared to 2001–04. Particularly noteworthy are the improvements made by males in the penultimate deprivation quintile, demonstrating the scope for substantial improvements in the prevalence of LLSI in areas with high baselines and relatively high levels of deprivation.

Limitations of this approach

A limitation of this study is the exclusion of the communal establishment population. This population is not included in the GLF and was subtracted from MYPEs. However, the mortality data used in this study included this population. This may lead to a slight skew in the data, particularly if there is a large difference in the communal establishment population across quintiles of deprivation or if there has been a substantial change in this population between the time points examined. However, as with earlier studies (Smith *et al.,* 2010a; Bajekal, 2005), we consider it unlikely that the inclusion of communal establishment deaths would materially alter the main findings of this analysis.

Conclusions

This report adds further to the growing body of evidence linking deprivation with health outcomes, and illustrates the large differences that exist between advantaged and disadvantaged area groupings. In absolute terms, inequality in LE and DFLE between the least and most deprived areas increased between 2001–04 and 2005–08, mostly driven by the uneven increases in these metrics over time. Changes in relative inequality appear to be age-dependant, with those at age 65 experiencing greater inequality than those at birth.

The findings presented here provide evidence for policy responses aimed at mitigating health inequalities between advantaged and disadvantaged populations, and provide a benchmark for monitoring the relative health improvement of these populations during the next decade.

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Exploratory analysis of seasonal mortality in England and Wales, 1998 to 2007

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Abstract

Background

This article reports research carried out to inform possible methods of describing seasonal mortality in relation to extremes of temperature. In particular, since different methods are currently used to assess excess winter mortality and heatwave related mortality, we aimed to find out whether a single method could be used to measure all seasonal mortality in relation to temperature. In order to do this the project investigated whether there are temperatures above or below which excess deaths occur, and explored whether it is possible to predict reliably how many deaths would occur at extreme temperatures.

Method

Daily and monthly Central England Temperatures for 1998 to 2007 were supplied by the Met Office Hadley Centre and daily death occurrence data between 1993 and 2007 was extracted from the death registrations database held by the Office for National Statistics (ONS). Least squares regression, based on the previous five years of data, was used to predict expected mortality, and excess mortality was calculated as the difference between the expected mortality and the observed mortality on any given day.

Statistically significant increases in both daily deaths and temperatures were investigated with the probability of excess mortality assessed on those days. Two regression models were calculated, one for deaths and temperature and one for excess deaths and temperature.

Results

Five days with statistically significant excess mortality were identified over the period 1 January 1998 to 31 December 2007, the largest being on 31 December 1999. Three of the five days identified coincided with extremely hot weather occurring in August 2003 and July 2006. However, more extreme temperatures were seen on some days with no excess mortality, so predicting mortality using extreme temperatures alone would cause frequent false positive results.

Regression models based on daily death and temperature explained only 8 per cent of the variance in summer mortality and 7 per cent of the variance in winter mortality. The models based on excess deaths and temperature explained 20 per cent of the variance in excess mortality in summer, but only 1 per cent of the variance in excess mortality in winter.

Conclusion

There is a weak but significant relationship between temperature and mortality in both the summer and winter months. While in winter mortality does increase as it gets colder, winter mortality is variable and high mortality can occur on relatively mild days. Similarly, in the summer high temperatures are often associated with relatively increased mortality, but a single hot day does not always lead to excess deaths. Daily mortality cannot be predicted from temperature alone: the prevalence of influenza in winter and factors such as air pollution in summer should also be considered.

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Introduction

In England and Wales more deaths occur in winter than in summer, with summer mortality typically being low and stable. Excess winter mortality (EWM) is calculated by comparing the number of deaths occurring in winter with the number occurring in a non-winter period. A previous analysis compared methods of calculating EWM using different winter and non-winter periods (Johnson and Griffiths, 2003). However, The Office for National Statistics (ONS) currently uses the same method as the World Health Organisation Regional Office for Europe (WHO, 2010) to produce its annual EWM figure and index (see Box 1). This is a simple way to assess mortality levels over the winter as a whole and allows comparisons to be made with previous years. The EWM index can be used to compare numbers of excess deaths between sexes, age groups, regions and countries.

Box 1 Standard ONS method for calculating excess winter mortality (EWM)

The standard method defines the winter period as December to March, and compares the number of deaths that occurred in this winter period with the average number of non-winter deaths occurring in the preceding August to November and the following April to July:

EWM = Dec to Mar deaths – ((Aug to Nov deaths + Apr to Jul deaths) / 2)

The EWM index is calculated as the number of excess winter deaths divided by the average non-winter deaths expressed as a percentage:

EWM Index = (EWM / average non-winter deaths) x 100

The EWM index is normally presented with 95 per cent confidence intervals, which are calculated as:

EWM index ± 1.96 x (EWM Index / $\sqrt{}$ EWM)

Johnson and Griffiths (2003) reported that in England and Wales between 1950 and 1999 the months from December to March had above average daily mortality; November and April had average mortality; and May to October had below average mortality – compared to the average daily mortality for the entire period. This supports the ONS method of calculating EWM based on a winter period defined as December to March. The definition of a non-winter period is somewhat less clear. Johnson and Griffiths showed that if mortality is unusually high in November or April (or in any of the non-winter months), estimates of EWM are actually reduced, as the autumn and spring months are included in the non-winter comparison period. This is a limitation of the current method of measuring EWM. A second drawback is that the current method does not account for the long-term declining trend in mortality in England and Wales. The final disadvantage of the current method is its timeliness. In order to produce EWM figures, the numbers of deaths occurring in the subsequent four months (April to July of the current year) are needed. This means that EWM

figures cannot be published until the following autumn. A method which could produce estimates of EWM more quickly would be welcomed by users.

Although mortality during the summer months is generally low, during heatwaves mortality increases, though not to the level of winter mortality (Johnson *et al.*, 2005). The standard ONS method for calculating excess summer mortality is the number of observed deaths during a specific heatwave period minus the baseline expected mortality (average of the number of deaths during the same period over the previous five years).

This article reports research carried out to inform possible alternative methods of describing seasonal mortality in relation to extremes of temperature. In particular, since different methods are currently used to assess excess winter mortality and heatwave related mortality, we aimed to find out whether a single method can be used to measure all seasonal mortality in relation to temperature. The findings are intended to help inform policy responses to extreme temperature events and facilitate further research into the causes of seasonal mortality. In order to do this the project investigated whether there are temperatures above or below which excess deaths occur and explored whether it is possible to predict reliably how many deaths would occur at extreme temperatures.

Background

Heatwave mortality

England and Wales, like other countries in Europe, experienced a severe heatwave in August 2003. This heatwave led to more than 2,000 excess deaths, a 16 per cent increase in deaths compared to the baseline for that calendar period (Johnson *et al.*, 2005 and Office for National Statistics, 2005). In Johnson *et al.*'s study, the heatwave period was defined according to when the maximum Central England Temperature (CET) exceeded average values from 1971 to 2000 by 8°C. Although CETs were used to define the heatwave, the impact was greatest in the southern half of England, particularly in London. On 10 August 2003 a record-breaking temperature of 38.5°C was reached in Faversham (Kent), and in London deaths during this heatwave period were 42 per cent higher than the five-year average. The elderly are particularly vulnerable to heatwave related mortality, and in London there was a 59 per cent increase in deaths in those over the age of 75 (Johnson *et al.*, 2005).

The large number of excess deaths during the August 2003 heatwave prompted the Department of Health to develop a 'Heatwave Plan for England' (DH, 2010). The Met Office defined a set of heatwave thresholds for day and night time temperatures. These vary from region to region, but the average threshold temperature is 30ºC during the day and 15ºC overnight.

During July 2006 another heatwave occurred, but the impact of this heatwave on mortality was not as great as in August 2003. Between 16 and 28 July 2006 there were 680 excess deaths, with mortality peaking on 19 July. This was a 4 per cent increase in deaths, compared with the five-year average, much less than the 16 per cent increase seen in the August 2003 heatwave (Office for National Statistics, 2006).

Conditions directly caused by heat (for example heatstroke) are rarely certified as the underlying cause of death. Instead, heatwave related mortality is more pronounced for respiratory and cerebrovascular diseases (Rooney *et al.*, 1998). In their review of the relationship between heat and mortality, Basu and Samet (2002) suggest that this is because people with pre-existing respiratory, and/or cerebrovascular diseases are more susceptible to death during heatwaves. This may be because thermoregulation can be impaired in the elderly and the chronically ill, making them more vulnerable to overheating (Department of Health, 2010).

Winter mortality

Excess winter mortality varies widely within Europe; in England and Wales there were 36,450 excess deaths in the winter of 2008/09, which amounts to 24 per cent more deaths in winter compared to the non-winter period (ONS, 2010). A study by Healy (2003) showed that in 14 European countries between 1988 and 1997 the winter increase ranged from 10 to 28 per cent. During this time period England and Wales both had slightly higher than average EWM (19 and 17 per cent respectively). This study showed that Finland, a country with very cold winters, had the lowest EWM, and Portugal, a country with milder winters, had the highest EWM. Consistent with this, the Eurowinter group found that percentage increases in mortality per 1°C fall in temperature below 18°C were greater in warmer European regions (for example Athens) than in colder regions (for example North Finland). This demonstrates the need to consider extremes of temperature in relation to country-specific temperature distributions, because absolute temperature alone cannot explain EWM.

Research suggests that EWM is higher in countries that take fewer precautions against the cold, both indoors and outdoors. For instance, a relationship has been found between EWM and measures of the thermal efficiency of homes, such as the percentage of houses that have cavity wall insulation (Healy, 2003). It has also been found that areas with older properties and areas where homes had a low indoor temperature have higher EWM from cardiovascular disease (Wilkinson *et al.*, 2001). The Eurowinter group (1997) reported that compared to people living in countries with cold winters, those from warmer countries were less likely to wear warm protective clothing, like hats, in cold weather. They were also more likely to remain inactive whilst outdoors. One study found that cold-related mortality in working age men was lower for unskilled occupations than for any other social class. The authors suggested this was because the internal heat produced from manual work protected these men from cold-stress (Donaldson and Keatinge, 2003).

As with heatwave mortality, conditions directly relating to cold, such as hypothermia, are not the main cause of excess winter deaths. The majority of additional winter deaths are caused by cerebrovascular diseases, ischaemic heart disease and respiratory disorders (The Eurowinter group, 1997). In contrast, there is very little seasonal variation in conditions such as cancer (Johnson and Griffiths, 2003). The cold can have various physiological effects, which may lead to death in vulnerable people. The Eurowinter group (1997) noted that cold causes haemoconcentration, which leads to thrombosis; and that cold can also lower the immune system's resistance to respiratory infections. Additionally, the level of influenza circulating in the population increases in winter; and in vulnerable groups, such as the elderly or those with pre-existing health problems, influenza can lead to life-threatening complications, such as bronchitis or secondary bacterial pneumonia (HPA, 2010).

In common with heatwave mortality, much higher excess winter mortality is seen in the elderly population than in younger people. Consequently, measures that aim to reduce EWM, such as winter fuel payments (DirectGov, 2010) and flu vaccinations (NHS, 2010) are targeted at older people.

Methodology

The analysis presented here uses two main sources of data: temperature data supplied by the Met Office Hadley Centre and ONS mortality data.

Temperature data

The Met Office Central England Temperature (CET) dataset was used to identify extreme temperatures from 1998 to 2007. The dataset contains daily and monthly temperatures, which are representative of a roughly triangular area of the UK enclosed by Lancashire, London and Bristol. The weather stations used to compile CET are chosen from the UK surface station network to be as consistent as possible with those used historically. The data are then adjusted to ensure consistency with the historical series (Parker *et al.*, 1992).

Mortality data

Data on deaths occurring in England and Wales on each day from 1993 to 2007 were extracted from the death registrations database held by ONS.

Statistical techniques used

Measuring actual and expected mortality

Firstly, an exploratory analysis of mortality patterns in England and Wales was carried out. Descriptive statistics for monthly deaths and graphical analyses of the relationship between mortality and temperatures were produced.

Following preliminary analyses (not reported here) least squares regression was found to be the best method for estimating expected deaths based on the same period in the previous five years. Therefore, in the following sections least squares regression was used to predict expected mortality. Excess mortality was calculated as the difference between the expected mortality and the observed number of deaths on any given day.

Identifying statistically significant increases in daily deaths

Daily deaths from 1993 to 2007 were used, which enabled 10 years of excess mortality values for each month to be estimated (January 1998 to December 2007). Average daily deaths were calculated for each month in each year from January 1993 to December 2006 (that is the average number of deaths on each day in January 1993, February 1993 … to December 2006). The expected average daily deaths for a month were predicted with least squares regression using the previous five years' averages. This formed a distribution of 10 years excess daily deaths for each month – around 300 values. The mean and standard deviation of the excess daily deaths were then calculated for each month from these distributions. The excess mortality data were then

normalised by subtracting the mean and dividing by the standard deviation. The normalised data were tested against the normal [N(0,1)] distribution to identify days with statistically significant excess mortality. The test statistic was adjusted using the Bonferroni method to correct for multiple significance tests (see Field, 2009 for an explanation of the Bonferroni method). An example calculation can be found in Annex A.

Once days with statistically significant excess mortality were identified, the temperatures on these dates were examined.

Identifying extreme temperatures

Central England Temperature (CET) data from 1993 to 2007 were used to identify extreme temperatures (ET) from 1998 to 2007. As with deaths, normalised temperatures were tested against the normal distribution to identify which were statistically significant. Daily mean temperatures were compared to the distribution of temperatures in the month over the last 10 years.

Probability of excess mortality

The probability of seeing a temperature as extreme as that which actually occurred on each day was calculated. An example calculation can be found in Annex B. In each month, the temperature probabilities were compared for days with significant excess mortality and the average for all other days.

Comparison with heatwave thresholds

In a previous analysis of summer mortality, heatwave periods were defined as when the maximum daily CET exceeded average values between 1971 and 2000 by 8°C (Johnson *et al.*, 2005). Given that temperatures have risen during this period, daily temperatures that are in line with this increasing trend may be high compared to a 30-year average, meaning that too many heatwaves will be identified. Therefore a slightly different definition was used here: daily maximum CETs were compared to the 10-year average for the month. The number of excess deaths and the probability of seeing mortality as extreme as this on each identified heatwave day were then examined to determine how useful this definition of a heatwave was.

Regression

Deaths and temperature

Firstly, regression analyses were carried out, regressing daily deaths against daily temperatures. Since the relationship between mortality and temperature is not linear, two sets of regression analyses were performed: one for the summer period (June to August) and one for the winter period (December to February). Previous research suggests there is a lag effect in winter (The Eurowinter group, 1997), meaning that cold temperatures do not cause an immediate increase in deaths, instead mortality peaks several days later. Therefore the temperature was lagged to allow the impact on deaths the following day, two days on, up to seven days on. In effect the deaths were regressed against the temperature on the previous day, and two days before, up to seven days before.

Excess mortality and temperature

In a second analysis, daily excess mortality was regressed against temperature to explore the relationship. Excess mortality was calculated using the least squares regression method described in section 1. Since five years of data were needed to calculate excess mortality on a given day, only data from 1998 to 2007 were used in this part of the analysis. This regression analysis was repeated separately for summer and winter periods. The significance of several different lag periods was tested in the winter analysis.

Results

Mortality patterns in England and Wales

Table 1 and figure 1 show that on average there are 1,478 deaths per day in England and Wales. However, the number of daily deaths varies considerably throughout the year, from just 1,100 in July 2006 to 2,798 in January 2000. Daily deaths are lowest between May and October, and are fairly stable. Daily deaths in December and January are significantly higher than during the rest of the year, and the numbers of deaths in these months is also much more variable. On average there were 1,337 deaths in summer and 1,699 in winter. Figure 1 shows that temperatures are highest in July and August and lowest in December, January and February.

Table 1 **Daily deaths per month in England and Wales, 1993–2007**

Month	Mean	SD	Min	Max	Range
January	1,795	262	1,377	2,798	1,421
February	1,605	82	1,351	1,845	494
March	1,536	90	1,293	1,811	518
April	1,468	80	1,254	1,712	458
May	1,392	71	1,212	1,617	405
June	1,361	73	1,125	1,668	543
July	1,335	74	1,100	1,567	467
August	1,314	78	1,156	1,696	540
September	1,337	81	1,122	1,563	441
October	1,414	96	1,173	1,709	536
November	1,494	132	1,239	2,018	779
December	1,687	241	1,307	2,739	1,432
Annual	1,478	197	1,100	2,798	1,698

Figure 1 Mean number of daily deaths and average temperature per month in England and Wales, 1993–2007

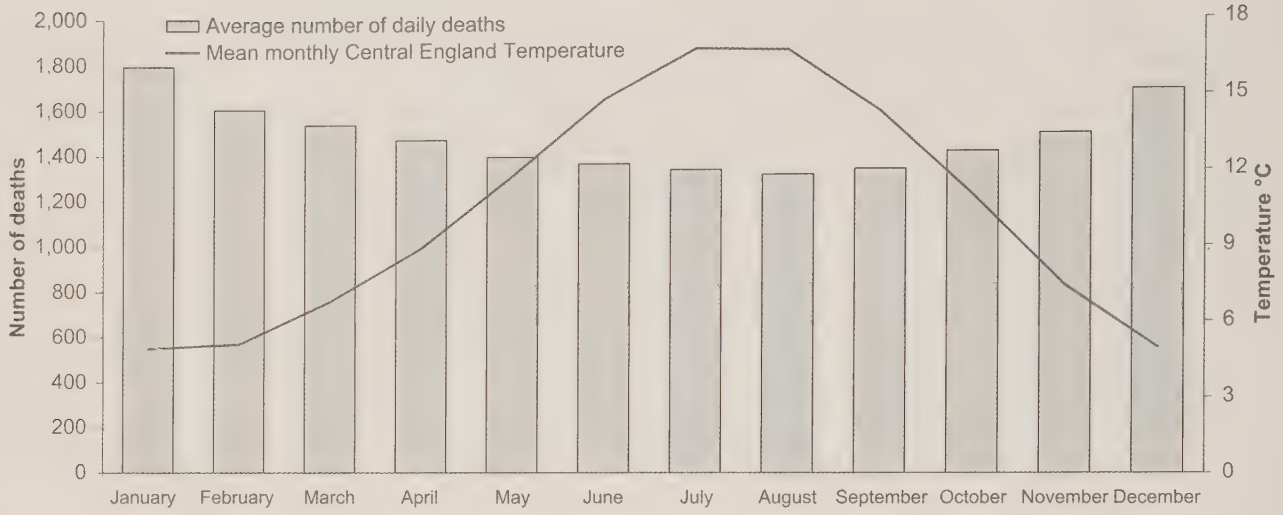

Figure 2 Daily mortality in England and Wales against the mean daily Central England Temperature, 1993–2007

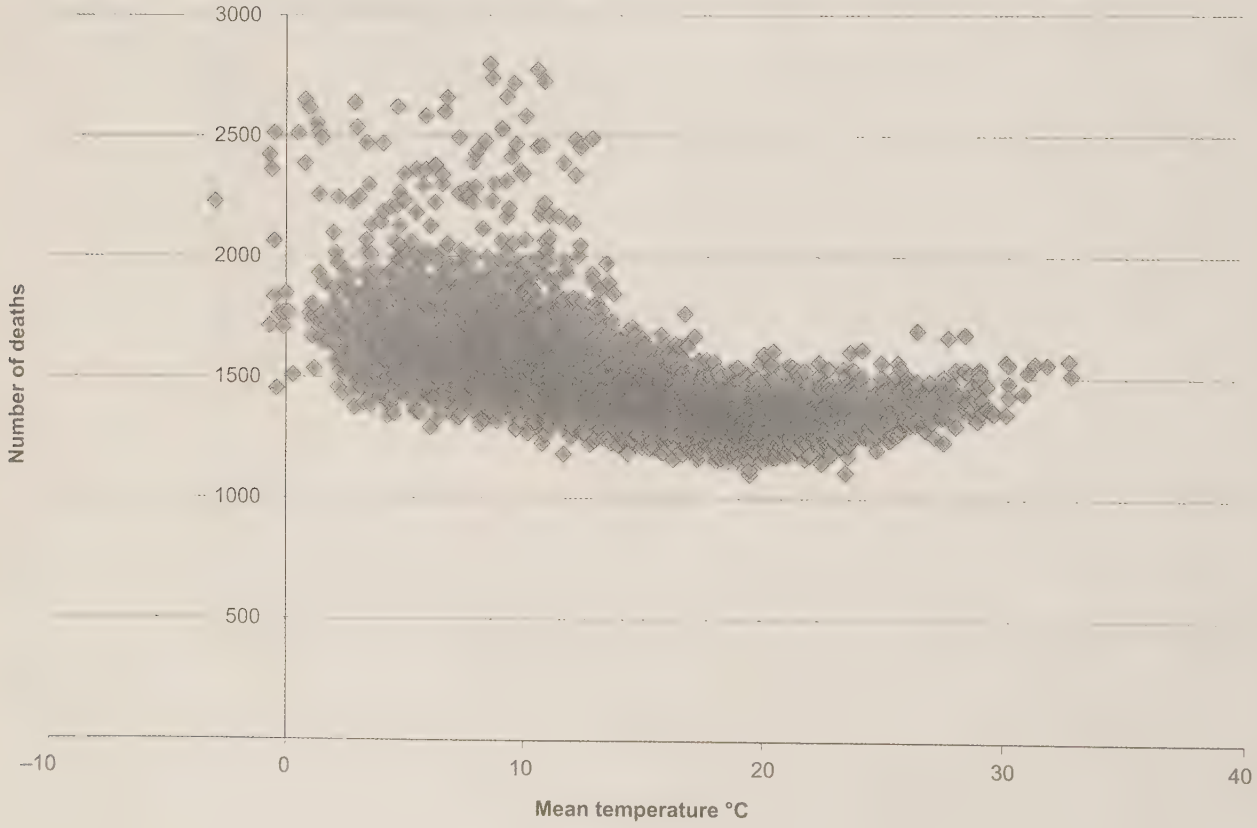

Figure 2 shows that the relationship between temperature and mortality is not linear. The curve can be described as J shaped, as deaths are lowest when temperatures are average (around 15°C), highest at colder temperatures, but also increase at extremely hot temperatures. Moreover, the scatterplot clearly shows there is much greater variability in mortality when mean temperatures fall below about 11°C.

Identifying excess mortality

Five days with statistically significant excess mortality were identified (see Table 2). The largest excess mortality occurred on 31 December 1999, when there were more than 900 extra deaths. In addition, the method identified excess mortality for three separate periods coinciding with extremely hot weather. More than 400 excess deaths occurred on both the 10 and 11 August 2003; and 270 excess on 19 July 2006. This corresponds to known heatwaves experienced in the UK during these two periods. Finally, more than 300 excess deaths occurred on 19 June 2000. Further investigation revealed that 18 June was the hottest day of the year, with CETs reaching 29.4°C.

Table 2 **All days identified as having statistically significant excess mortality between January 1998 and December 2007**

Year	Month	Day	Actual deaths	Predicted Deaths	Excess Mortality	Min CET	Max CET
1999	December	31	2,739	1,808	931	3.4	8.7
2000	June	19	1,668	1,343	325	15.2	27.8
2003	August	10	1,680	1,273	407	16.4	28.5
2003	August	11	1,696	1,273	423	16.2	26.5
2006	July	19	1,513	1,243	270	16.0	32.9

Identifying extremes of temperature

We found that temperatures were less volatile than deaths. Only one extreme temperature event (relative to the monthly average) was identified: on 18 October 1998 the mean CET temperature was 0.1°C, but the average temperature in October was 11.1°C. However, this unseasonably cold weather was not related to an excess mortality event.

Probability of excess mortality

We compared the probabilities of extreme temperatures occurring for the five days identified as having significant excess mortality, with the average temperature probabilities all other days. Relatively extreme temperatures occurred on all summer days with excess mortality, but on millennium eve temperatures were not unusually cold. However, the minimum probabilities on days with no excess mortality are always much lower than the average probability on excess mortality days. That is, more extreme temperatures were seen on days with no excess mortality, hence false positives would proliferate if using temperature to predict significant excess mortality.

Table 3 Probability of temperatures associated with excess mortality events, average and minimum temperature probabilities for those months

Month	Period	Excess mortality event?	Average probability of daily temperature(s)	Minimum probability of daily temperature
June	19 June 2000	Yes	0.01	
	All other days in June 1998–2007	No	0.53	0.002
July	19 July 2006	Yes	0.01	
	All other July days in 1998–2007	No	0.50	0.003
August	10–11 August 2003	Yes	0.03	
	All other August days in 1998–2007	No	0.56	0.001
December	31 December 1999	Yes	0.72	
	All other December days in 1998–2007	No	0.47	0.004

Comparison with heatwave thresholds

Twenty five heatwave days (in 14 separate periods) were identified where daily maximum CETs exceeded the 10-year average for the month by 8°C. However, a number of the heatwaves identified occurred in spring or autumn, and although the temperatures were hot for that time of year, they were not hot in absolute terms. So, with the exception of 27 May 2005, they did not cause excess mortality. Therefore only summer heatwaves are presented in Table 4. Of the summer heatwaves identified, just over half were associated with higher levels of mortality, shown by the fact that the probability of mortality being as high as was seen on those days was below 0.05.

This method identified two of the excess mortality days shown in Table 3: 19 June 2000 and 19 July 2006. The hottest day of the August 2003 heatwave (09 August) was also identified, but the two days with statistically significant excess mortality (10 and 11 August) were not identified as heatwave days, as they were slightly cooler (although minimum night time temperatures were actually hotter on 10 and 11 August).

Table 4 **Summer heatwaves identified where daily maximum CETs exceeded 10-year average for the month by 8°C**

Date	Maximum daily temperature / °C	Average maximum temperature for that day / °C	Excess mortality	Probability of excess mortality
31 Jul 1999	29.7	21.2	0	0.99
18 Jun 2000	29.4	19.4	126	0.04
19 Jun 2000[1]	27.8	19.4	325	<0.01
26 Jun 2001	28.8	19.4	125	0.04
14 Jul 2003	29.6	21.2	32	0.68
15 Jul 2003	31.1	21.2	187	0.01
05 Aug 2003	29.1	21.1	205	0.01
09 Aug 2003	32.8	21.1	299	<0.01
18 Jun 2005	27.6	19.4	54	0.38
19 Jun 2005	29.1	19.4	201	<0.01
17 Jul 2006	29.6	21.2	116	0.09
18 Jul 2006	30.9	21.2	195	<0.01
19 Jul 2006[1]	32.9	21.2	270	<0.01
25 Jul 2006	30.2	21.2	110	0.11

1 Days identified as having statistically significant excess mortality in table 3

Regression

Deaths and temperature

The relationship between daily mortality and mean, minimum and maximum daily temperatures was explored using regression analysis, but only the strongest relationships are reported here.

In summer the regression equation was:

Deaths = 1200.6 (12.4) + 6.6 (0.6) * temperature[1]

This model indicates that for each 1°C increase in maximum CET above 21°C, seven extra deaths occur (a 0.5 per cent increase based on the average number of daily deaths in summer). Although the model shows that temperature significantly predicts mortality, it only explains 8 per cent of the variance in summer mortality.

[1] The figures shown in brackets after the parameter estimates in the regression equations, for example 1200.6 (12.4), are the standard errors of the parameter estimates.

The best regression model for predicting winter deaths was based on the mean Central England Temperature seven days earlier:

Deaths = 1802.9 (11.9) - 20.5 (2.0) * temperature[2]

This model indicates that for each 1°C decrease in mean CET below 5°C, 21 extra deaths occur seven days later (a 1.2 per cent increase based on the average number of daily deaths in winter). Although the model shows that temperature significantly predicts mortality, it only explains 7 per cent of the variance in winter mortality.

Excess mortality and temperature

The regression analysis was repeated using excess mortality regressed on temperature. For summer, excess mortality is zero when the maximum temperature is 20.7°C.

In summer the regression equation was:

Excess mortality = -203.0 (13.6) + 9.8 (0.7) * Maximum Temperature[1]

This model shows that for each 1°C increase in maximum CET above 21°C, 10 excess deaths occur. Although the model shows that temperature significantly predicts mortality, it only explains 20 per cent of the variance in excess summer mortality.

In winter the regression equation was:

Excess mortality = -2.4 (9.5) - 6.5 (2.3) * Minimum Temperature (lag 4)[1]

For winter, the relationship between temperature and excess mortality was most significant at lag 4 (temperature four days earlier). This means that excess mortality is zero when the minimum temperature is -0.4°C. This model suggests that for each 1°C decrease in minimum CET below -0.4°C, seven excess deaths occur. This amounts to a 0.4 per cent increase on average winter mortality. Although the model shows that temperature significantly predicts mortality, it only explains 1 per cent of the variance in excess winter mortality.

Discussion

Heatwave mortality

The analysis identified surprisingly few days with statistically significant excess mortality. Four out of the five excess mortality days coincided with very hot weather. During the August 2003 heatwave CETs peaked at 32.8°C on 9 August, and a large number of excess deaths were seen on the following two days. Temperatures on 9 August 2003 were classed as a heatwave since the maximum daily CET exceeded average values between 1971 and 2000 by more than 8°C. The temperature on this day also reached the thresholds that were later put in place in the Heatwave Plan for England (30ºC during the day and 15ºC overnight). Similarly, in the July 2006 heatwave,

[2] The figures shown in brackets after the parameter estimates in the regression equations are the standard errors of the parameter estimates.

CETs exceeded 30°C for two consecutive days on 18 and 19 July, and a peak in deaths was seen on 19 July. Both of these heatwaves have been reported in previous articles (Johnson *et al.*, 2005 and Office for National Statistics, 2006). The short lag periods seen during these two heatwaves is consistent with other studies (Basu and Samet, 2002).

Unexpectedly, more than 300 excess deaths occurred on 19 June 2000. Investigation showed that 18 June was the hottest day of the year, with CETs reaching 29.4°C, and temperatures remained hot on 19 June. The media reported that on 19 June, 58 illegal immigrants suffocated to death in the back of a lorry in Dover (BBC, 2000). Although this tragic event affected death registration statistics on this date, excess deaths were still statistically significant even when these deaths were excluded.

Of the summer heatwave days identified by this research (where daily maximum CET exceed the 10-year average by 8°C), only about half had unusually high mortality. Additionally, the two days with the highest mortality during the August 2003 heatwave were not the hottest days of that period and did not meet this heatwave threshold. This suggests that it is important to consider the days immediately following a heatwave, as excess mortality does not always occur on the hottest day. The first regression model found that a 1°C increase in temperature above 21°C was associated with an extra seven deaths, whilst the second model suggested an extra 10 deaths. However, the regression models only explained between 8 and 20 per cent of the variance in summer mortality, which may be because other factors, such as air pollution, are associated with summer mortality. For example, Rooney *et al.* (1998) found that up to 62 per cent of the excess mortality in England and Wales during the 1995 heatwave may have been attributable to concurrent increases in air pollution (ozone, nitrogen dioxide and particulates). More recent research from 90 US cities found a 0.21 per cent increase in mortality from non-external causes per 10-µg/m3 increase in PM10 at lag 1 (Dominici *et al.*, 2003).

Health Protection agency (HPA) analysis of deaths in England during the summer of 2006 (when a heatwave occurred) showed that there were 75 extra deaths for each degree of temperature elevation (Health Protection Agency, 2006). This is higher than the 7 to 10 extra deaths estimated by the current research, suggesting that the model underestimates mortality. This difference is possibly due to the fact that the relationship between temperature and mortality is weaker in the 10 years of data we studied, compared with summer 2006 alone. A further explanation is that the relationship between mortality and temperature may not be linear at extremes of temperature, where mortality may increase more sharply. This is not captured by the linear regression performed in this analysis.

Winter mortality

The only winter day with statistically significant excess deaths was millennium eve (31 December 1999), which had the largest number of excess deaths of any day. This date was not exceptionally cold – the minimum CET was 3.4°C, and CETs had not dropped below freezing on any day in the previous week. However, weekly GP consultation rates for influenza-like illness were high, and epidemic influenza activity (according to the current HPA threshold) was seen in the first and second week of January 2000 (Goddard *et al.*, 2000).

Analysis of cause of death showed that only 20 people died from influenza itself. However, influenza is rarely certified as the underlying cause of death, but can lead to life-threatening complications such as pneumonia (Curwen *et al.*, 1990). The current research found that more people died from diseases of the respiratory system like bronchopneumonia, pneumonia and chronic airways obstruction on millennium eve, compared with the rest of the year. Furthermore, there was no increase in suicides on millennium eve (which might have been expected given the significance of the date). Therefore it is likely that the excess mortality seen on millennium eve is due to high levels of influenza circulating in the population.

Weekly consultation rates for influenza and influenza-like illness (Royal College of General Practitioners Weekly Returns) show that the largest influenza epidemic in recent times in England and Wales occurred in the winter of 1989/90. High levels of influenza were also seen in the winters of 1993/94, 1996/97, 1998/99 and 1999/2000 (Goddard *et al.*, 2000). These seasonal influenza epidemics coincide with years which had high levels of excess winter mortality, with the exception of 1993/94. In contrast, the winter of 1995/96 was particularly cold, and although excess winter mortality was higher than years with milder winters, it was not as high as years with influenza epidemics.

It is perhaps surprising that there were no other winter days with significant excess mortality. This may be because we are comparing daily mortality to the monthly average. Since mortality in the summer months is generally low and stable, and because the effects of heatwaves are more immediate, more of these excesses were identified in summer months. Mortality in the winter months was too variable to identify excess deaths using this method. The effect of cold on mortality is more gradual and has longer lasting effects than heatwaves (Analitis *et al.*, 2008). So increases in deaths may be spread over a period of weeks, rather than days, meaning we are less likely to see individual days with exceptionally high mortality.

The method used in this research only identified five days with statistically significant excess mortality. Using the same method to look for days with statistically significant temperature extremes only identified one day. Moreover, the temperature on this day was only extreme relative to October and was not exceptionally cold in absolute terms. The known heatwaves of August 2003 and July 2006 were identified as unusual, but not significant temperature extremes. This suggests that these methods cannot be used to reliably identify extremes of temperature that are important to public health.

As expected, this research found a relationship between mortality and temperature three to seven days before in winter. The mortality data used in the current study is all cause mortality. The lag of three to seven days is slightly longer than found in other studies (The Eurowinter group, 1997). Additionally, the relationship was not as strong as expected. For example, Curwen and Devis (1988) found a correlation of -.76 between the number of excess winter deaths and the mean winter temperature, once the effects of winter influenza deaths had been controlled for. The regression analyses in the current study explained 7 per cent (first regression) and 1 per cent (second regression) of the variance in winter mortality. The difference between these two models is partly due to the fact that the first regression is predicting deaths, whereas the second model is predicting excess deaths, after some of the seasonal effects of mortality have been removed. In addition, because the second regression model required five years of data to predict excess

mortality, only data from 1998 onwards was used. The first regression used data from the whole time period, 1993 onwards.

In contrast, Curwen and Devis (1988) modelled excess winter deaths between 1949 and 1985 and found a model including winter temperature, influenza deaths, and a time factor explained 88 per cent of the total annual variance in excess winter deaths. This again highlights the importance of influenza incidence to winter mortality.

The current study found that for each 1°C decrease in mean CET below 5°C, 21 extra deaths occur (a 1.2 per cent increase based on the average number of daily deaths in winter), which is broadly similar to previous findings. The Eurowinter group (1997) found that mortality in London increased by 1.4 per cent for each 1°C decrease in mean temperature below 18°C. Aylin *et al.* (2001) estimated that there was a 1.5 per cent higher odds of dying in winter for each 1°C decrease in mean temperature below the 10-year national average in Great Britain.

Limitations and further research

An important limitation of this research is that it focused only on temperature and did not take into account the impact of influenza on winter mortality. Further research would need to include influenza incidence data (for example from GP consultations) in the regression model. Future studies could also investigate including additional variables such as age, sex and cause of death. This may elucidate whether temperature has a more direct impact on mortality for certain subgroups (for example elderly people), or for certain causes of death (such as respiratory diseases). In addition, a more complex regression model could also take into account any non-linear relationship between mortality and temperature that may exist.

One concern is that the relationship between mortality and temperature may be weaker with national level data (Central England Temperatures and England and Wales deaths), compared with local area data. This issue was illustrated during the August 2003 heatwave, when deaths in London increased by 42 per cent, compared with 17 per cent in England overall, possibly due to the nocturnal urban heat island in London (Johnson *et al.*, 2005). Consequently, further studies will also need to examine the relationship between temperature and seasonal mortality at a local level.

This research has concentrated on temperature on a single day and how this relates to mortality on that day or on some day in the future (using lags). However, further research could examine whether hot or cold periods sustained over a period of days (or weeks) are more important for mortality than a single extremely hot or cold day. Additionally, it would be useful to investigate whether the rate of change in temperature is important.

When searching for days with statistically significant mortality, the Bonferroni procedure was used to correct for multiple tests. However, this could be seen as a conservative approach, as days with clinically important increases in deaths (for example, 20 per cent more deaths than expected) were not identified using this method. This was particularly the case in the winter months due to the variability of mortality in winter.

Conclusion

This research has explored the relationship between temperature and mortality, in order to inform possible alternative methods of describing seasonal mortality. We identified five days with statistically significant excess mortality. Of these, four days occurred during very hot weather (three during known heatwaves) and one occurred in the winter during an influenza epidemic.

There was a weak significant relationship between temperature and mortality in both the summer and the winter, and temperature only explained a small proportion of the variance in mortality. This means that in winter, although mortality does tend to increase as it gets colder, this is not necessarily the case. Daily mortality in winter is very variable, and high levels of mortality can occur on relatively mild days. Similarly in summer, although several days of extremely high temperatures are usually associated with increased mortality, a single hot day does not always lead to excess deaths.

Consequently, we conclude that daily mortality cannot be predicted from temperature alone. Previous research suggests that this is because excess seasonal mortality is strongly influenced by the prevalence of influenza in winter, and to a lesser extent factors such as air pollution in summer.

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Annex A

Table A1 Example calculation of normalised daily deaths on 01 January 2000

Statistic	Number
Expected daily deaths in January 2000[1]	2,035
Observed deaths on 1 January 2000	2,798
Excess mortality on 1 January 2000	763
Average daily excess mortality in January	-63.06
Standard deviation of daily excess mortality in January	291.98
Normalised value for excess mortality on 1 January 2000	2.83
Probability of normalised value	0.005
Five per cent critical value after Bonferroni correction	3.80

[1] Calculated using least squares regression on the last five years of data.

The probability of normalised excess mortality (EM) was calculated as $2(1 - \Phi[EM])$, where $\Phi(Z)$ is the probability that a random selection from the Gaussian normal (N(0,1)) distribution is less than Z.

For example: The number of expected daily deaths in January 2000 (calculated using the least squares regression on the last five years of data) was 2,035. The observed numbers of deaths on 01 January 2000 was 2,798. Therefore the excess mortality on 01 January 2000 was 763 (2,798 – 2,035). The mean and standard deviation of daily excess mortality in January (1998 to 2007) were -63.06 and 291.98 respectively. Therefore the normalised value for excess mortality on 01 January 2000 was 2.83: (763 – -63.06) / 291.98 = 2.83. So the probability of seeing excess mortality this extreme on 01 January 2000 was 0.005: $2(1 - \Phi [2.83]) = 2 (1 - 0.9977) = 2 \times 0.0023 = 0.005$. This means that there was less than a 1 per cent chance of seeing excess mortality as extreme as this. However, the test statistic was adjusted using the Bonferroni method to correct for multiple significance tests (approximately 300 tests – 30 days per month for 10 years of data). This means the probability would need to be less than 0.000167 (2 x (0.025 / 300)) before it was statistically significant. So the 5 per cent critical value after Bonferroni correction was 3.80, and because 2.83 is less than the critical value of 3.80, the excess mortality was not statistically significant. So in the above example, although there was a small probability of seeing excess mortality of 763 in January, it was not statistically significant excess mortality.

Annex B

Example calculation of normalised daily temperatures on 19 June 2005

The probability of each normalised temperature (NT) was calculated as:

$$2\left(1-\Phi\left[\mathrm{NT}\right]\right)$$

For example: the mean CET on 19 June 2005 was 22.1°C. The mean and standard deviation for June (1998 to 2007) were 14.7°C and 2.8°C respectively. Therefore the normalised temperature on 19 June 2005 was (22.1 – 14.684) / 2.752 = 2.695. So the probability of seeing a temperature this extreme on 19 June 2005 was: 2(1 – Φ [2.695]) = 2 (1 – 0.9965) = 2 x 0.0035 = 0.007. This means that there was less than a 1 per cent chance of seeing a temperature as extreme as this. However, the test statistic was adjusted using the Bonferroni method to correct for multiple significance tests (approximately 300 tests – 30 days per month for 10 years of data). This means the probability would need to be less than 0.000167 (2 x (0.025 / 300)) before it was statistically significant. So in the above example, although there was a small probability of seeing a mean temperature of 22.1°C in June, it was not a statistically significant extreme temperature.

Inequalities in cancer survival: Spearhead Primary Care Trusts are appropriate geographic units of analyses

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Abstract

Background

Cancer survival in Spearhead Primary Care trusts (PCTs) is lower than in the rest of England for most common cancers, but differences are smaller than the more substantial survival gradients between deprived and affluent populations using small-area measures of deprivation. The way in which Spearhead PCTs were designated may give an unduly favourable image of inequalities in cancer survival.

Methods

Five-year age-standardised relative survival for 10 common cancers was estimated separately for patients resident in Spearhead local authorities (LAs), Spearhead PCTs, and the rest of England. Differences in survival between Spearhead and other LAs and the corresponding differences between Spearhead and other PCTs were compared.

Results

Cancer survival was consistently lower for patients resident in Spearhead areas than in the rest of England for the majority of cancers, regardless of the geographic unit used. Survival was lower in Spearhead LAs than Spearhead PCTs for 11 of the 16 cancer-sex combinations examined. As a consequence, the survival gap between the Spearhead areas and the rest of England was slightly wider when the definition of Spearhead was based on LAs rather than PCTs, but the two contrasts provide a very similar picture.

Conclusions

Small differences were found between using Spearhead LAs and Spearhead PCTs in the estimation of cancer survival, but results were inconsistent. Although the overlap between the two geographies is imperfect, Spearhead PCTs are appropriate geographic units for monitoring inequalities in cancer survival. However, given the instability of NHS geographical boundaries, Spearhead LAs could be a suitable alternative geographic unit.

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Table 1 Five-year age-standardised relative survival for adults diagnosed during 2000–04 and followed up to 2005, 10 common cancers, by sex: Spearhead LAs, Spearhead PCTs and the rest of England 86

Background

The 'Spearhead' group of 70 LAs and 62 PCTs was introduced in 2004, as the focus of government interventions designed to reduce health inequalities (Department of Health, 2004). Spearhead LAs were seen as facing the greatest health challenges, on the basis that their populations were in the lowest fifth of the 354 LAs in England for three or more selected indicators: male and female life expectancy at birth, cardiovascular disease and cancer mortality rate in the under 75s, and Index of Multiple Deprivation 2004 average score. The designation of Spearhead PCTs was indirect, in that the territory of the PCTs overlapped **at least partly** with the territory of Spearhead LAs.

Some PCTs acquire the Spearhead designation despite having only a small geographic overlap with a Spearhead LA, and this may give an unduly favourable image of health inequalities. Where only a small proportion of the resident population of a PCT lies within the LA from which it derives Spearhead status, the rest of the PCT population may be comparatively affluent. This could lead to overestimation of survival in Spearhead PCTs compared with that in truly deprived groups. Any observed deficit in survival between Spearhead and non-Spearhead PCTs could thus be an underestimation of the 'real' survival deficit.

Inequalities in cancer survival are well documented in England. Cancer patients resident in Spearhead PCTs have significantly lower survival than in all other PCTs (Ellis *et al.,* 2009), although studies using small-area measures of deprivation have identified more substantial survival gradients between deprived and affluent populations (Coleman *et al.,* 2004; Rachet *et al.,* 2008).

We have therefore compared differences in cancer survival between populations in Spearhead and other LAs and the corresponding differences between populations resident in Spearhead and other PCTs. These comparisons will provide insight into the impact of different geographical boundaries on cancer survival indicators.

Methods

Cancer incidence data were provided by the National Cancer Registry at the Office for National Statistics. Analyses included all adults (aged 15–99) resident in England who were diagnosed during 2000–2004 (before the introduction of the Spearhead group) with one of ten common cancers (bladder, breast, cervix, colon, lung, oesophagus, ovary, prostate, rectum, stomach) as a first, primary, malignant neoplasm, and who were followed up until 31 December 2005 (see Rachet *et al.* 2008 for details of exclusion criteria).

Five-year age-standardised relative survival for each cancer was estimated separately for patients resident in Spearhead and all other LAs, and Spearhead and all other PCTs. Relative survival is the ratio of the observed (crude) survival of the cancer patients and the survival that would have been expected if those patients had experienced only the same age and sex-specific mortality rates (background mortality) as the general population from which they are drawn (Estève *et al.,* 1990; Ederer *et al.,* 1961; Cutler and Ederer, 1958). Life tables containing all-cause mortality rates by single year of age, sex, Government Office Region (GOR) and deprivation category were used

to represent background mortality. A maximum likelihood approach of calculating crude and relative survival from individual tumour records was applied (Estève *et al.,* 1990), using an algorithm developed for previous analyses (Coleman *et al.,* 1999).

The difference in relative survival between patients in Spearhead LAs or PCTs and in the rest of England is expressed as a percentage. The difference is shown as negative if survival is lower in Spearhead LAs or PCTs than in the rest of England.

Results

Among all the cancer patients diagnosed in England during 2000–2004, 200,059 (28 per cent) were resident in Spearhead LAs, and 257,524 (36 per cent) were resident in Spearhead PCTs, an additional 57,465 patients. Twenty two per cent of cancer patients resident in Spearhead PCTs were not resident in Spearhead LAs.

Survival was lower in the Spearhead areas (whether defined by PCT or LA) than in the rest of England for most of the 16 cancer-sex combinations examined. The exceptions were cancers of the stomach (men), ovary, and prostate, where survival was higher in the Spearhead areas than the rest of England, although these differences were not statistically significant (Table 1).

Table 1 Five-year age-standardised relative survival for adults diagnosed during 2000–04 and followed up to 2005, 10 common cancers, by sex: Spearhead LAs, Spearhead PCTs and the rest of England

England

Numbers

		Spearhead LAs		Rest of England				Spearhead PCTs		Rest of England				
Cancer[1]		No. of cases	%	No. of cases	%	gap[2]	p-value	No. of cases	%	No. of cases	%	gap[2]	p-value	gap[3]
Bladder	M	8,239	*56.4*	21,216	*58.0*	-1.6	0.14	10,509	*57.0*	18,945	*57.8*	-0.8	0.44	-0.8
	W	3,439	*45.2*	8,130	*48.1*	-2.8	0.00	4,308	*44.8*	7,261	*48.4*	-3.6	0.00	0.8
Breast	W	42,521	*80.1*	124,069	*81.2*	-1.1	0.01	56,178	*80.5*	110,401	*81.2*	-0.7	0.04	-0.4
Cervix	W	3,955	*63.2*	7,499	*63.9*	-0.6	0.60	4,791	*63.3*	6,664	*64.0*	-0.7	0.55	0.1
Colon	M	11,222	*47.0*	30,974	*49.5*	-2.5	0.01	14,794	*47.7*	27,423	*49.5*	-1.9	0.03	-0.6
	W	10,251	*48.8*	30,228	*50.3*	-1.5	0.07	13,569	*49.3*	26,903	*50.2*	-0.9	0.26	-0.6
Lung	M	27,721	*6.6*	55,084	*6.6*	-0.1	0.73	33,872	*6.5*	48,935	*6.7*	-0.1	0.65	0.0
	W	19,543	*8.0*	35,471	*8.4*	-0.4	0.25	23,377	*8.2*	31,629	*8.4*	-0.2	0.55	-0.2
Oesophagus	M	5,069	*9.4*	13,569	*10.2*	-0.8	0.03	6,612	*9.7*	12,026	*10.2*	-0.5	0.07	-0.3
	W	3,018	*8.7*	7,681	*10.5*	-1.8	0.00	3,921	*9.1*	6,778	*10.5*	-1.4	0.12	-0.4
Ovary	W	6,873	*39.8*	19,445	*38.5*	1.3	0.14	9,159	*39.8*	17,161	*38.3*	1.5	0.06	-0.2
Prostate	M	32,067	*75.7*	98,074	*75.3*	0.4	0.52	42,959	*75.4*	87,182	*75.4*	0.1	0.92	0.4
Rectum	M	9,123	*48.6*	21,965	*52.4*	-3.8	0.00	11,896	*49.1*	19,189	*52.7*	-3.6	0.00	-0.2
	W	5,519	*53.0*	14,439	*53.9*	-0.9	0.47	7,264	*53.4*	12,691	*53.8*	-0.4	0.70	-0.4
Stomach	M	7,349	*14.2*	14,556	*13.5*	0.7	0.37	9,209	*14.2*	12,697	*13.3*	0.9	0.19	-0.3
	W	4,150	*15.9*	7,763	*16.6*	-0.7	0.52	5,106	*16.0*	6,807	*16.6*	-0.6	0.55	-0.1

1 Cancers defined by codes in the International Classification of Diseases, tenth revision (ICD-10)
2 The difference between the relative survival for patients resident in Spearhead LAs or PCTs and relative survival for those in the rest of England.
3 The difference between the survival gap when analyses are performed using LAs and PCTs

4 · These survival estimates are not age-standardised due to small numbers of cases in some age strata

Five-year survival was lower in Spearhead LAs than Spearhead PCTs for 11 of the 16 cancer-sex combinations examined, although absolute differences were minimal (-0.1% to -0.7%). As a consequence, the difference in survival between the Spearhead areas and the rest of England (the survival gap) was slightly wider when the definition was based on LAs rather than PCTs (Figure 1).

Figure 1 **Difference in five-year age-standardised relative survival for adults diagnosed during 2000–04, 10 common cancers, by sex: Spearhead LAs vs Rest of England and Spearhead PCTs vs Rest of England**

Somewhat larger differences are seen for cancers of the bladder (men) and colon (both sexes), where the survival gap differs by -0.8 per cent and -0.6 per cent, respectively, between Spearhead LAs and Spearhead PCTs. Conversely, for six other cancer-sex combinations, the survival gap was slightly wider when analyses are performed using Spearhead PCTs. Even the largest differences between PCT-based and LA-based comparisons for cancer of the bladder (0.8 per cent) in women and for prostate cancer (0.4 per cent) are still small.

Discussion

These results show that for most common cancers, the deficit in five-year survival between Spearhead LAs and the rest of England is indeed slightly wider than between Spearhead PCTs and the rest of England. Health policies designed to reduce inequalities, based as they are on Spearhead PCTs, will thus be slightly easier to achieve than if they had been based on Spearhead Local Authorities, at least for cancer survival. However, the differences between using Spearhead LAs or Spearhead PCTs to estimate the survival gap are small.

We had assumed that the designation of Spearhead PCTs would result in an underestimation of the survival deficit between deprived and affluent populations, presenting an unduly favourable image of the gap in cancer survival at baseline. Whilst slight differences were found between using Spearhead LAs and Spearhead PCTs in the estimation of cancer survival, the results were neither consistent enough, nor large enough, to support this concern.

These analyses do show that survival is consistently lower for patients resident in Spearhead areas than in the rest of England for the majority of cancers, regardless of the geographic unit used, although previous analyses suggest that the gap in survival was narrowing even before the introduction of the Spearhead Group in 2004 (Ellis *et al.,* 2009).

Conclusion

The gap in five-year survival between Spearhead LAs and the rest of England is slightly wider than between Spearhead PCTs and the rest of England. Differences are small however, and we conclude that Spearhead PCTs are an acceptable geographic unit for monitoring inequalities in cancer survival.

However, in July 2010 the Government White Paper 'Equity and excellence: liberating the NHS' proposed the abolition of Primary Care Trusts, replacing them with new local GP consortiums (Department of Health, 2010). The impact of this restructuring on the Spearhead Group is as yet unknown. Given the small differences in cancer survival estimated using PCTs and LAs reported here, Spearhead LAs would appear to be a suitable alternative geographic unit.

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Competing interests

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Notes to Tables

Time series
For most tables, years start at 1971 and then continue at five-year intervals until 1991. Individual years are shown thereafter.

United Kingdom
The United Kingdom comprises England, Wales, Scotland and Northern Ireland. The Channel Islands and the Isle of Man are not part of the United Kingdom.

Population
The estimated and projected resident population of an area includes all people who usually live there, whatever their nationality. Members of HM and US Armed Forces in the United Kingdom are included on a residential basis wherever possible. HM Forces stationed outside the United Kingdom are not included. Students are taken to be resident at their term time addresses.
Further information can be found at: www.statistics.gov.uk/popest

Live births
For England and Wales, figures relate to the number of births occurring in a period; for Scotland and Northern Ireland, figures relate to births registered in a period. By law, births must be registered within 42 days in England and Wales, within 21 days in Scotland, and within 42 days in Northern Ireland. In England and Wales, where a birth is registered later than the legal time period, and too late to be included in the count for the year of occurrence, it will be included in the count for the following year.

The age-specific fertility rate (ASFR), is the number of births per 1,000 women in the stated age group. The total fertility rate (TFR), is the average number of children that a group of women would have if they experienced the ASFRs for a particular year throughout their childbearing lives. The TFR reflects the current intensity of childbearing and the rate at which the population replaces itself. The TFR is a synthetic measure since ASFRs do not normally remain stable during the childbearing life span of a woman.

Perinatal mortality
In October 1992 the legal definition of a stillbirth was changed, from a baby born dead after 28 completed weeks of gestation or more, to one born dead after 24 completed weeks of gestation or more.

Period expectation of life
The life tables on which these expectations are based use death rates for the given period to describe mortality levels for each year. Each individual year shown is based on a three-year period, so that for instance 1986 represents 1985–87. Further information can be found at www.statistics.gov.uk/StatBase/Product.asp?vlnk=14459

Deaths
Figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring each year from 1993 and 2005. Figures for 2006 onwards relate to registrations. All infant, neonatal and perinatal mortality data represents registrations. All figures for Scotland and Northern Ireland relate to the number of deaths registered in each year.

Coding cause of death
Between 1 January 1984 and 31 December 1992, ONS applied its own interpretation of the International Classification of Diseases (ICD) Section Rule 3 in the coding of deaths where terminal events and other 'modes of dying' such as cardiac arrest, cardiac failure, certain thrombembolic disorders, and unspecified pneumonia and bronchopneumonia, were stated by the certifier to be the underlying cause of death and other major pathology appeared on the certificate. In these cases ONS Rule 3 allowed the terminal event to be considered a direct sequel to the major pathology and that primary condition was selected as the underlying cause of death. Prior to 1984 and between 1 January 1993 and 31 December 2000, such certificates were coded to the terminal event. ONS also introduced automated coding of cause of death in 1993, which may also affect comparisons of deaths by cause from 1993. Further details can be found in the annual volumes *Mortality statistics: Cause 1984*, Series DH2 no. 11, and *Mortality statistics: Cause 1993 (revised) and 1994*, Series DH2 no. 21.

From 1 January 2001, under ICD–10, Rule 3 was again changed – for details see the article in *Health Statistics Quarterly* 13. This resulted in a fall in the death rates from respiratory diseases, notably pneumonia, and consequently slight rises in the rates for other causes (for example strokes). For details of the major changes between ICD–9 and ICD–10, see the articles in *Health Statistics Quarterly* 08, 13 and 14.

Age-standardised mortality
Directly age-standardised rates make allowances for changes in the age structure of the population. The age-standardised rate for a particular condition is that which would have occurred if the observed age-specific rates for the condition had applied in a given standard population. Table 2.2 uses the European Standard Population. This is a hypothetical population standard which is the same for both males and females allowing standardised rates to be compared for each sex, and between males and females.

Abortions
Figures relate to numbers occurring in a period.

International Migration
The UN recommends the following definition of an international long-term migrant:
An *international long-term migrant* is defined as a person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence.
Long-Term International Migration estimates are compiled from several main sources of migration data:
• The richest source of information on international migrants comes from the International Passenger Survey (IPS), which is a sample survey of passengers arriving at, and departing from, the main United Kingdom air and sea ports and Channel Tunnel. This survey provides migration estimates based on respondents' *intended* length of stay in the UK or abroad and excludes most persons seeking asylum and some dependants of such asylum seekers.
• Two adjustments are made to account for people who do not realise their intended length of stay on arrival. First, visitor data from the IPS are used to estimate 'visitor switchers': those people who initially come to or leave the UK for a short period but subsequently stay for a year or longer. Second, people who intend to
be migrants, but who in reality stay in the UK or abroad for less than a year ('migrant switchers'), are estimated from IPS migrant data.
• Home Office data on asylum seekers and their dependants.
• From 2008 onwards, data from the Northern Ireland Statistics and Research Agency is used to estimate international migration to and from Northern Ireland.
• For 1991-2007, estimates of migration between the UK and the Irish Republic are estimated using information from the Irish Quarterly National Household Survey and the National Health Service Central Register. From 2008, the IPS has been used to measure these flows.

Further information on long-term migration estimates can be found at www.statistics.gov.uk/StatBase/Product.asp?vlnk=507

Internal Migration
Figures in Table 8.1 are based on the movement of NHS doctors' patients between former Health Authorities (HAs) in England and Wales, and Area Health Boards in Scotland and Northern Ireland. Yearly and quarterly figures have been adjusted to take account of differences in recorded cross-border flows between England and Wales, Scotland and Northern Ireland.

Estimates of internal migration are based on the date of acceptance of the new patient by the HA and a one month time lag is assumed. It has been established that NHSCR data under-report the migration of males aged between 16 and 36 (See http://www.statistics.gov.uk/downloads/theme_population/Revising_Internal_Migration_Estimates.pdf.)

Marriages and divorces
Marriages are tabulated according to date of solemnisation. Divorces are tabulated according to date of decree absolute. The term 'divorces' includes decrees of nullity. The fact that a marriage or divorce has taken place in England, Wales, Scotland or Northern Ireland does not mean either of the parties is resident there.

Civil Partnerships
The Civil Partnership Act 2004 came into force on 5 December 2005 in the UK, the first day couples could give notice of their intention to form a civil partnership. The first day that couples could formally form a partnership was 19 December 2005 in Northern Ireland, 20 December 2005 in Scotland and 21 December 2005 in England and Wales. (18 civil partnerships were formed under special arrangements before these dates. These are included in the figures for England and Wales).

Civil partnerships are tabulated according to date of formation and area of occurrence. The fact that a civil partnership has taken place in England, Wales, Scotland or Northern Ireland does not necessarily mean either of the parties is resident there.

EU Enlargement
The coverage of European countries in Table 1.1 has been updated to reflect the enlargement of the EU to 27 member countries (EU27). On 1 May 2004, 10 new member countries were added: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. On 1 January 2007 a further 2 countries were added: Bulgaria and Romania.

Sources
Figures for Scotland and Northern Ireland have been provided by the General Register Office for Scotland and the Northern Ireland Statistics and Research Agency respectively. The International Passenger Survey (see International migration) is conducted by the Surveys and Administrative Sources Directorate of ONS.

Calculating quarterly rates
Quarterly rates are calculated using seasonal adjustments which take into account the number of days in the month/year. The denominators used for calculating quarterly rates have been produced from mid-year population estimates and projections.

Rounding
All figures are rounded independently; constituent parts may not add to totals. Generally numbers and rates per 1,000 population are rounded to one decimal place (e.g. 123.4); where appropriate, for small figures (below 10.0), two decimal places are given (e.g. 7.62). Figures which are provisional or estimated are given in less detail (e.g. 123 or 7.6 respectively) if their reliability does not justify giving the standard amount of detail. Where figures need to be treated with particular caution, an explanation is given as a footnote.

Latest figures
Figures for the latest quarters and years may be provisional, these will be updated in final figures when data is available. Where figures are not yet available, cells are left blank.

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Symbols

..	not available	-	nil or less than half the final digit shown
:	not applicable	p	provisional

Table 1.1 Population and vital rates: international

Selected Countries

Numbers (thousands)/Rates per thousand

Year	United Kingdom	Austria	Belgium	Bulgaria	Cyprus[1]	Czech Republic	Denmark[2]	Estonia	Finland[3]	France[4]	Germany[5]	Greece[6]	Hungary
Population (thousands)													
2001	59,113	8,042	10,287	7,913	701[17]	10,224	5,359	1,364	5,188	59,476	82,340	10,950	10,188
2002	59,319	8,082	10,333	7,869	710[17]	10,201	5,374	1,359	5,201	59,894	82,482	10,988	10,159
2003	59,552	8,118	10,373	7,824	721[17]	10,202	5,387	1,354	5,213	60,304	82,520	11,024	10,130
2004	59,842	8,169	10,417	7,781	737[17]	10,207	5,401	1,349	5,228	60,734	82,501	11,062	10,107
2005	60,235	8,225	10,473	7,740	758[17]	10,234	5,416	1,346	5,246	61,181	82,464	11,104	10,087
2006	60,584	8,268	10,542	7,699	771[17]	10,267	5,435	1,344	5,266	61,585[P]	82,366	11,149	10,071
2007	60,986	8,301	10,623	7,660	785[17]	10,323	5,457	1,342	5,289	61,938[P]	82,263	11,193	10,056
2008	61,398	8,337	10,667[J]	7,623	793[17,P]	10,430	5,489	1,341	5,313	62,277[P]	82,127[P]	11,237	10,038
2009	61,792	8,365	10,750[J,P]	7,585[P]	800[17,P]	10,492[P]	5,519	1,340[P]	5,337[P]	62,610[P]	81,735[P]	11,283	10,020[P]
Population changes (per 1,000 per annum)													
2001-02	3.5	5.0	4.5	–5.6	12.8	–2.2	2.8	–3.7	2.5	7.0	1.7	3.5	–2.8
2002-03	3.9	4.5	3.9	–5.7	15.5	0.1	2.4	–3.7	2.3	6.8	0.5	3.3	–2.9
2003-04	4.9	6.3	4.2	–5.5	22.2	0.5	2.6	–3.7	2.9	7.1	–0.2	3.4	–2.3
2004-05	6.6	6.9	5.4	–5.3	28.5	2.6	2.8	–2.2	3.4	7.4	–0.4	3.8	–2.0
2005-06	5.8	5.2	6.6	–5.3	17.2	3.2	3.5	–1.5	3.8	6.6	–1.2	4.1	–1.6
2006-07	6.6	4.0	7.7	–5.1	18.2	5.5	4.0	–1.5	4.4	5.7	–1.3	3.9	–1.5
2007-08	6.8	4.3	4.1	–4.8	10.2	10.4	5.9	–0.7	4.5	5.5	–1.7	3.9	–1.8
2008-09	6.4	3.4	7.8	–5.0	8.8	5.9	5.5	–0.7	4.5	5.3	–4.8	4.1	–1.8
Live birth rate (per 1,000 population per annum)													
2001	11.3	9.4	11.1	8.6	11.6	8.9	12.2	9.3	10.8	13.0	8.9	9.3	9.5
2002	11.3	9.7	10.8	8.5	11.1	9.6	11.9	9.6	10.7	12.7	8.7	9.5	9.5
2003	11.7	9.5	10.8	8.6	11.2	9.2	12.0	9.6	10.9	12.6	8.6	9.5	9.3
2004	12.0	9.7	11.1	9.0	11.3	9.6	12.0	10.4	11.0	12.6	8.6	9.6	9.4
2005	12.0	9.5	11.3	9.2	10.9	10.0	11.9	10.7	11.0	12.7	8.3	9.7	9.7
2006	12.4	9.4	11.5	9.6	11.3	10.3	11.9	11.1	11.2	12.9	8.2	10.0	9.9
2007	12.7	9.2	11.4	9.8	10.9	11.1	11.7	11.8	11.1	12.7	8.3	10.0	9.7
2008	12.9	9.3	11.7	10.2	11.6	11.5	11.8	12.0	11.2	12.8	8.3	10.5	9.9
2009	12.8[P]	9.2	11.7	10.7	12.0	11.3	11.4	11.8	11.3	12.7	8.0	10.5	9.6
Death rate (per 1,000 population per annum)													
2001	10.2	9.3	10.1	14.2	6.9	10.5	10.9	13.6	9.4	8.9	10.1	9.4	13.0
2002	10.2	9.4	10.2	14.3	7.3	10.6	10.9	13.5	9.5	8.9	10.2	9.5	13.1
2003	10.3	9.5	10.3	14.3	7.2	10.9	10.7	13.4	9.4	9.2	10.3	9.6	13.4
2004	9.7	9.1	9.8	14.2	7.1	10.5	10.3	13.1	9.1	8.4	9.9	9.5	13.1
2005	9.7	9.1	9.9	14.6	7.2	10.5	10.1	12.9	9.1	8.6	10.1	9.5	13.5
2006	9.4	9.0	9.6	14.7	6.7	10.2	10.2	12.9	9.1	8.4	10.0	9.5	13.1
2007	9.4	9.0	9.5	14.8	6.9	10.1	10.2	13.0	9.3	8.4	10.1	9.8	13.2
2008	9.4	9.0	9.5	14.5	6.5	10.1	9.9	12.4	9.2	8.6	10.3	9.6	13.0
2009	9.1[P]	9.3	..	14.2	6.5	10.2	9.9	12.1	9.3	8.6	10.3	9.6	13.0

Note: Data for all countries except the UK has been taken from the United Nations Monthly Bulletin of Statistics at http://unstats.un.org/unsd/mbs/app/DataSearchTable.aspx.
In a very small number of cases, the latest European data has been obtained from Eurostat as it is not yet available from the UN Monthly Bulletin of Statistics.
Eurostat data can be found at: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.
Estimated population is mid-year throughout, unless otherwise indicated.
The UK figures in this table include the revised 2002–2008 population estimates which were published on 13 May 2010.
For historical data for the United Kingdom please see Table 1.2 at: www.statistics.gov.uk/downloads/theme_health/Pop-national12.xls.
For historical data for all other countries prior to 1997 please see Table 1 at the link: http://unstats.un.org/unsd/demographic/products/dyb/dybhist.htm.
This table was updated on 4 November 2010. Consequently it does not include any new or revised figures added to the sources after this date.

Table 1.1 continued **Population and vital rates: international**

Selected Countries — Numbers (thousands)/Rates per thousand

Year	Irish Republic	Italy	Latvia	Lithuania	Luxembourg	Malta[7]	Netherlands	Poland[8]	Portugal[9]	Romania	Slovakia	Slovenia
Population (thousands)												
2001	3,847[18]	56,977	2,355	3,481	442	385	16,046	38,251	10,293	22,408	5,380	1,992
2002	3,920[18]	57,157	2,339	3,469	446	387	16,149	38,232	10,368	21,795	5,379	1,996
2003	3,979[18]	57,605	2,325	3,454	452	399	16,225	38,195	10,441	21,734	5,379	1,997
2004	4,044[18]	58,175	2,313	3,436	458	401	16,282	38,180	10,502	21,673	5,383	1,997
2005	4,131[18]	58,607	2,301	3,414	465	404	16,320	38,161	10,549	21,624	5,387	2,001
2006	4,235[18]	58,941	2,288	3,394	473	407	16,346	38,132	10,584	21,584	5,391	2,009
2007	4,339[18,P]	59,375	2,276	3,376	480	409	16,382	38,116	10,608	21,538	5,398	2,019
2008	4,422[18,P]	59,832	2,266	3,358	489	412	16,446	38,116[J,P]	10,622	21,504	5,407	2,023
2009	4,459[18,P]	60,187[P]	2,255	3,339[P]	494[J]	413	16,514[P]	38,153[P]	10,638[P]	21,500[P]	5,418[P]	2,042[P]
Population changes (per 1,000 per annum)												
2001-02	19.0	3.2	–6.8	–3.4	9.0	5.2	6.4	–0.5	7.3	–27.4	–0.2	2.0
2002-03	15.1	7.8	–6.0	–4.3	13.5	31.0	4.7	–1.0	7.0	–2.8	0.0	0.5
2003-04	16.3	9.9	–5.2	–5.2	13.3	5.0	3.5	–0.4	5.8	–2.8	0.7	0.0
2004-05	21.5	7.4	–5.2	–6.4	15.3	7.5	2.3	–0.5	4.5	–2.3	0.7	2.0
2005-06	25.2	5.7	–5.6	–5.9	17.2	7.4	1.6	–0.8	3.3	–1.8	0.7	4.0
2006-07	24.6	7.4	–5.2	–5.3	14.8	4.9	2.2	–0.4	2.3	–2.1	1.3	5.0
2007-08	19.1	7.7	–4.4	–5.3	18.8	7.3	3.9	0.0	1.3	–1.6	1.7	2.0
2008-09	8.4	5.9	–4.9	–5.7	10.2	2.4	4.1	1.0	1.5	–0.2	2.0	9.4
Live birth rate (per 1,000 population per annum)												
2001	15.1	9.2	8.3	9.1	12.4	10.1	12.6	9.6	11.0	9.8	9.5	8.8
2002	15.4	9.4	8.6	8.7	12.0	10.1	12.5	9.3	11.0	9.7	9.5	8.8
2003	15.5	9.4	9.0	8.9	11.7	10.2	12.3	9.2	10.8	9.8	9.6	8.7
2004	15.3	9.7	8.8	8.9	11.9	9.7	11.9	9.3	10.4	10.0	10.0	9.0
2005	14.9	9.5	9.3	8.9	11.5	9.6	11.5	9.5	10.4	10.2	10.1	9.1
2006	15.2	9.5	9.7	9.2	11.7	9.6	11.3	9.8	10.0	10.2	10.0	9.4
2007	16.3	9.5	10.2	9.6	11.4	9.5	11.1	10.2	9.7	10.0	10.1	9.8
2008	17.0	9.6	10.6	10.4	11.5	10.0	11.2	10.9	9.8	10.3	10.6	10.8
2009	16.7	9.5	9.6	11.0	11.4	10.0	11.2	11.2	9.4	10.4	11.3	10.6
Death rate (per 1,000 population per annum)												
2001	7.9	9.6	14.0	11.6	8.4	7.6	8.7	9.5	10.2	11.6	9.7	9.3
2002	7.6	9.8	13.9	11.8	8.4	7.8	8.8	9.4	10.2	12.4	9.6	9.4
2003	7.3	10.2	13.9	11.9	9.0	7.9	8.7	9.6	10.4	12.3	9.7	9.7
2004	7.1	9.4	13.8	12.0	7.8	7.5	8.4	9.5	9.7	11.9	9.6	9.3
2005	6.8	9.7	14.2	12.8	7.8	7.8	8.4	9.7	10.2	12.1	9.9	9.4
2006	6.5	9.5	14.5	13.2	8.0	7.9	8.3	9.7	9.6	12.0	9.9	9.1
2007	6.5	9.7	14.5	13.5	8.1	7.6	8.1	9.9	9.8	11.7	10.0	9.2
2008	6.4	9.7	13.7	13.1	7.4	7.9	8.2	10.0	9.8	11.8	9.8	9.1
2009	6.5	9.8	13.3	12.6	7.4	7.8	8.1	10.1	9.8	12.0	9.8	9.2

1 Republic of Cyprus – Data refer to Government controlled areas.
2 Denmark – Excluding Faeroe Islands and Greenland.
3 Finland – Including Aland Islands.
4 France – Excludes diplomatic personnel outside the country and includes members of alien armed forces not living in military camps and foreign diplomatic personnel not living in embassies or consulates. Also Excludes Overseas Departments; namely; French Guiana; Guadeloupe; Martinique and Reunion.
5 Including former GDR throughout.
6 Greece – population excludes armed forces stationed outside the country but includes alien forces stationed in the area.
7 Malta – including work and resident permit holders and foreigners residing in Malta.
8 Poland – excluding civilian aliens within the country but including civilian nationals temporarily outside the country.
9 Portugal – including the Azores and Madeira islands.
10 Spain – including the Balearic and Canary Islands.
11 In 2001, the European Union consisted of 15 countries. This has since been expanded to include: 10 countries (2004-EU25); 2 countries (2007-EU27). In this table, all totals include the EU27.
12 Population estimates for Canada have been adjusted for census net undercoverage (including adjustment for incompletely enumerated Indian reserves). Estimates for 2001–2005 are final intercensal estimates. Estimates for 2006 are final postcensal estimates. Estimates for 2007 are updated postcensal estimates. Estimates for 2008 are preliminary postcensal estimates. Birth rates for 2007–2009 taken from Statistics Canada.
13 China – For statistical purposes all data for China do not include those for the Hong Kong SAR, Macao SAR and Taiwan province of China. Population data have been estimated on the basis of the annual National Sample Surveys on Population Changes.
14 India – Including the Indian held part of Jammu and Kashmir, the final status of which has not yet been determined. Population data for 2002 onwards refer to national projections.
15 Japan – excluding diplomatic personnel outside the country and foreign military and civilian personnel and their dependents stationed in the area
16 USA – excluding armed forces overseas and civilian citizens absent from the country for extended periods.
17 Indicates population estimates of uncertain reliability.
18 Data refer to 15 April.
19 Data for 2005 are estimated from the National Sample Survey of 1 per cent population.
P Provisional, preliminary or estimated figure.
J Denotes population estimates as at 1 January.

Sources: Office for National Statistics, United Nations.

Table 1.1 continued **Population and vital rates: international**

Selected Countries

Numbers (thousands)/Rates per thousand

Year	Spain[10]	Sweden	EU[11]	Russian Federation	Australia	Canada[12]	New Zealand	China[13,19]	India[14]	Japan[15]	USA[16]
Population (thousands)											
2001	40,721	8,896	482,619	145,977	19,413	31,019	3,881	1,271,850[17]	1,034,931[17]	127,149	285,040
2002	41,314	8,925	483,847	145,307	19,651	31,354	3,949	1,280,400[17]	1,051,258[17]	127,445	287,727
2003	42,005	8,958	485,870	144,566	19,895	31,640	4,027	1,288,400[17]	1,068,065[17]	127,718	290,211
2004	42,692	8,994	488,065	143,821	20,127	31,941	4,088	1,296,075[17]	1,084,757[17]	127,761	292,892
2005	43,398	9,030	490,301	143,114	20,395	32,245	4,134	1,303,720[17]	1,101,318[17]	127,773	295,561
2006	44,068	9,081	492,280	142,487	20,698	32,576	4,185	1,311,020[17]	1,117,734[17]	127,756	298,363
2007	44,874	9,148	494,554	142,115	21,073	32,932	4,228	1,324,655[17]	1,134,023[17]	127,772	301,290
2008	45,593	9,220	498,780	141,956	21,499[P]	33,327	4,269	..	1,150,196[17]	127,704	304,060
2009	45,930	9,292[P]	..	141,904[J]	21,955[P]	33,740[P]	4,316	..	1,166,000[17,P]	127,558[P]	307,007[P]
Population changes (per 1,000 per annum)											
2001-02	14.6	3.3	2.5	–4.6	12.3	10.8	17.5	6.7	15.8	2.3	9.4
2002-03	16.7	3.7	4.2	–5.1	12.4	9.1	19.8	6.2	16.0	2.1	8.6
2003-04	16.4	4.0	4.5	–5.2	11.7	9.5	15.1	6.0	15.6	0.3	9.2
2004-05	16.5	4.0	4.6	–4.9	13.3	9.5	11.3	5.9	15.3	0.1	9.1
2005-06	15.4	5.6	4.0	–4.4	14.9	10.3	12.3	5.6	14.9	–0.1	9.5
2006-07	18.3	7.4	4.6	–2.6	18.1	10.9	10.3	10.4	14.6	0.1	9.8
2007-08	16.0	7.9	4.5	–1.1	20.2	12.0	9.7	..	14.3	–0.5	9.2
2008-09	7.4	7.8	..	–0.4	21.2	12.4	11.0	..	13.7	–1.1	9.7
Live birth rate (per 1,000 population per annum)											
2001	10.0	10.3	10.4	9.0	12.7	10.8	14.4	13.4	25.4	9.2	14.1
2002	10.1	10.7	10.3	9.6	12.7	10.5	13.7	12.9	25.0	9.2	14.0
2003	10.5	11.1	10.3	10.2	12.6	10.6	13.9	12.4	24.8	8.9	14.1
2004	10.6	11.2	10.4	10.4	12.6	10.6	14.2	12.3	24.1	8.8	14.0
2005	10.7	11.2	10.4	10.2	12.7	10.6	14.0	12.4	23.8	8.4	14.0
2006	11.0	11.7	10.6	10.4	12.8	10.7	14.1	12.1	23.5	8.7	14.3
2007	11.0	11.7	10.6	11.3	13.5	11.0	15.1	12.0	23.1	8.6	14.3
2008	11.4	11.9	10.9	12.1	13.8	11.2	15.1	..	22.8	8.7	..
2009	10.7	12.0	10.7	12.4	13.6	11.3[P]	14.5	..	..	8.5	..
Death rate (per 1,000 population per annum)											
2001	8.9	10.5	9.9	15.4	6.6	7.1	7.2	6.4	8.4	7.6	8.5
2002	8.9	10.6	9.9	16.1	6.8	7.1	7.1	6.4	8.1	7.8	8.5
2003	9.2	10.4	10.1	16.4	6.6	7.1	7.0	6.4	8.0	8.0	8.4
2004	8.7	10.1	9.6	16.0	6.6	7.1	7.0	6.4	7.5	8.1	8.2
2005	8.9	10.2	9.8	16.1	6.4	7.1	6.5	6.5	7.6	8.6	8.3
2006	8.4	10.0	9.6	15.2	6.5	7.0	6.7	6.8	7.5	8.6	8.1
2007	8.6	10.0	9.7	14.6	6.5	7.1	6.7	6.9	7.4	8.8	8.0
2008	8.6	9.9	9.7	14.6	6.7	7.2	6.8	..	7.4	9.1	..
2009	8.3	9.7	..	14.2	6.4	..	6.7	..	..	9.1	..

Table 1.2 Mid Year Population: national

Constituent countries of the United Kingdom

Numbers (thousands) and percentage age distribution

Mid-year	United Kingdom	Great Britain	England and Wales	England	Wales	Scotland	Northern Ireland
Estimates							
1971	55,928	54,388	49,152	46,412	2,740	5,236	1,540
1976	56,216	54,693	49,459	46,660	2,799	5,233	1,524
1981	56,357	54,815	49,634	46,821	2,813	5,180	1,543
1986	56,684	55,110	49,999	47,188	2,811	5,112	1,574
1991	57,439	55,831	50,748	47,875	2,873	5,083	1,607
1992	57,585	55,961	50,876	47,998	2,878	5,086	1,623
1993	57,714	56,078	50,986	48,102	2,884	5,092	1,636
1994	57,862	56,218	51,116	48,229	2,887	5,102	1,644
1995	58,025	56,376	51,272	48,383	2,889	5,104	1,649
1996	58,164	56,503	51,410	48,519	2,891	5,092	1,662
1997	58,314	56,643	51,560	48,665	2,895	5,083	1,671
1998	58,475	56,797	51,720	48,821	2,900	5,077	1,678
1999	58,684	57,005	51,933	49,033	2,901	5,072	1,679
2000	58,886	57,203	52,140	49,233	2,907	5,063	1,683
2001	59,113	57,424	52,360	49,450	2,910	5,064	1,689
2002	59,319	57,622	52,567	49,649	2,918	5,055	1,697
2003	59,552	57,850	52,792	49,863	2,929	5,057	1,703
2004	59,842	58,132	53,053	50,110	2,943	5,078	1,710
2005	60,235	58,511	53,416	50,466	2,950	5,095	1,724
2006	60,584	58,843	53,726	50,764	2,962	5,117	1,742
2007	60,986	59,227	54,082	51,106	2,976	5,144	1,759
2008	61,398	59,623	54,455	51,465	2,990	5,169	1,775
2009	61,792	60,003	54,809	51,810	2,999	5,194	1,789
2009 by age group (percentages)							
0–4	6.1	6.1	6.1	6.2	5.7	5.6	6.8
5–15	12.6	12.5	12.6	12.6	12.6	12.0	14.5
16–44	39.6	39.6	39.6	39.8	37.0	38.8	40.6
45–64M/59F	22.3	22.3	22.2	22.1	23.0	23.8	21.1
65M/60F–74	11.6	11.7	11.6	11.5	13.0	12.2	10.4
75 and over	7.8	7.9	7.9	7.8	8.6	7.7	6.4
Projections[1]							
2011	62,649	60,834	55,601	52,577	3,024	5,233	1,815
2016	64,773	62,900	57,576	54,472	3,104	5,324	1,874
2021	66,958	65,031	59,620	56,433	3,187	5,411	1,927
2026	69,051	67,080	61,597	58,334	3,263	5,483	1,971
2031	70,933	68,929	63,397	60,071	3,326	5,532	2,005
2031 by age group (percentages)							
0–4	5.6	5.6	5.6	5.7	5.2	4.9	5.6
5–15	12.4	12.4	12.5	12.5	12.1	11.5	13.3
16–44	36.4	36.4	36.5	36.7	34.2	34.6	35.4
45–64[2]	23.3	23.3	23.2	23.2	23.1	24.3	24.1
65–74[2]	10.6	10.6	10.5	10.4	11.7	12.2	10.7
75 and over	11.7	11.7	11.7	11.6	13.6	12.5	10.9

Note: This table includes the revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010.
Figures for constituent countries may not sum to United Kingdom, Great Britain and England and Wales totals due to rounding.

1 National projections based on mid-2008 population estimates.

2 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 66 years for both sexes.

Sources: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 1.3 Population: subnational

Government Office Regions of England — Numbers (thousands) and percentage age distribution

Mid-year	North East	North West	Yorkshire and The Humber	East Midlands	West Midlands	East	London	South East	South West
Estimates									
1971	2,679	7,108	4,902	3,652	5,146	4,454	7,529	6,830	4,112
1976	2,671	7,043	4,924	3,774	5,178	4,672	7,089	7,029	4,280
1981	2,636	6,940	4,918	3,853	5,187	4,854	6,806	7,245	4,381
1986	2,594	6,833	4,884	3,908	5,180	4,999	6,774	7,468	4,548
1991	2,587	6,843	4,936	4,011	5,230	5,121	6,829	7,629	4,688
1992	2,591	6,841	4,949	4,037	5,237	5,143	6,829	7,657	4,714
1993	2,594	6,847	4,954	4,056	5,246	5,154	6,844	7,673	4,734
1994	2,589	6,839	4,960	4,072	5,249	5,178	6,874	7,712	4,757
1995	2,583	6,828	4,961	4,092	5,257	5,206	6,913	7,763	4,782
1996	2,576	6,810	4,961	4,108	5,263	5,233	6,974	7,800	4,793
1997	2,568	6,794	4,958	4,120	5,262	5,267	7,015	7,853	4,827
1998	2,561	6,792	4,958	4,133	5,271	5,302	7,065	7,889	4,849
1999	2,550	6,773	4,956	4,152	5,272	5,339	7,154	7,955	4,881
2000	2,543	6,774	4,959	4,168	5,270	5,375	7,237	7,991	4,917
2001	2,540	6,773	4,977	4,190	5,281	5,400	7,322	8,023	4,943
2002	2,540	6,777	5,002	4,222	5,294	5,430	7,369	8,043	4,972
2003	2,540	6,799	5,029	4,254	5,310	5,468	7,380	8,080	5,003
2004	2,541	6,819	5,067	4,292	5,324	5,500	7,413	8,115	5,040
2005	2,548	6,839	5,111	4,327	5,347	5,551	7,485	8,173	5,085
2006	2,553	6,852	5,146	4,363	5,362	5,593	7,547	8,224	5,124
2007	2,560	6,864	5,182	4,397	5,378	5,649	7,602	8,296	5,178
2008	2,571	6,874	5,217	4,429	5,408	5,717	7,668	8,369	5,210
2009	2,584	6,898	5,258	4,451	5,431	5,767	7,754	8,436	5,231
2009 by age group (percentages)									
0–4	5.7	6.1	6.0	5.8	6.3	6.1	7.3	6.0	5.4
5–15	12.1	12.7	12.5	12.5	13.1	12.9	12.0	12.9	12.2
16–44	38.5	38.9	40.1	38.7	38.5	37.9	47.9	38.1	36.4
45–64M/59F	23.5	22.6	22.1	22.9	22.1	22.6	19.0	22.8	23.1
65M/60F–74	12.2	11.9	11.6	12.2	12.0	12.2	8.1	11.8	13.3
75 and over	8.1	7.7	7.7	7.9	8.0	8.3	5.6	8.4	9.6
Projections[1]									
2008	2,571	6,874	5,217	4,429	5,408	5,717	7,668	8,369	5,210
2013	2,622	6,989	5,439	4,611	5,543	6,000	8,007	8,696	5,426
2018	2,676	7,116	5,662	4,798	5,689	6,291	8,338	9,034	5,647
2023	2,733	7,250	5,887	4,990	5,842	6,587	8,646	9,391	5,882
2028	2,786	7,370	6,103	5,173	5,986	6,863	8,923	9,734	6,114
2033	2,830	7,472	6,296	5,334	6,113	7,114	9,188	10,047	6,321
2033 by age group (percentages)									
0–4	5.2	5.5	5.5	5.3	5.9	5.4	6.7	5.4	5.0
5–15	11.9	12.5	12.3	12.2	13.1	12.4	12.5	12.4	11.7
16–44	35.6	35.8	37.7	34.8	35.4	34.0	44.1	34.1	33.2
45–65[2]	24.1	23.9	23.9	24.7	23.6	25.2	23.4	25.0	24.5
66–74[2]	10.4	10.0	9.3	10.3	9.6	10.0	6.5	10.0	11.0
75 and over	12.8	12.2	11.4	12.8	12.4	12.9	6.9	13.1	14.7

Note: This table includes the revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010. Figures may not sum to England totals due to rounding.

1 These projections are based on the 2008 population estimates and are consistent with the 2008-based national projections produced by the Office for National Statistics.

2 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women, to 66 years for both sexes.

Source: Office for National Statistics.

Table 1.4 **Population: age and sex**

Constituent countries of the United Kingdom

Numbers (thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F [1]	65M/60F [1] and over
United Kingdom																
Persons																
1981	56,357	730	2,726	8,147	9,019	8,010	6,774	9,540	2,935	5,195	2,677	..	..	12,543	33,780	10,035
1986	56,684	748	2,886	7,143	9,200	8,007	7,711	9,212	3,069	5,020	2,971	716	..	11,645	34,725	10,313
1991	57,439	790	3,077	7,141	8,168	8,898	7,918	9,500	2,888	5,067	3,119	626	248	11,685	35,197	10,557
1996	58,164	719	3,019	7,544	7,231	9,131	7,958	10,553	2,785	5,066	3,129	711	317	12,018	35,498	10,649
2001	59,113	663	2,819	7,624	7,261	8,475	8,846	11,168	2,884	4,947	3,296	753	377	11,863	36,406	10,845
2002	59,319	661	2,752	7,602	7,404	8,261	9,003	11,306	2,892	4,967	3,344	738	388	11,783	36,620	10,915
2003	59,552	680	2,704	7,544	7,579	8,078	9,105	11,410	2,949	5,000	3,399	706	399	11,716	36,824	11,012
2004	59,842	705	2,685	7,473	7,745	7,948	9,185	11,506	3,027	5,028	3,431	702	409	11,641	37,083	11,118
2005	60,235	716	2,712	7,370	7,891	7,931	9,245	11,616	3,114	5,046	3,420	755	419	11,585	37,419	11,232
2006	60,584	732	2,764	7,238	8,026	7,892	9,260	11,744	3,240	5,029	3,416	820	423	11,533	37,708	11,344
2007	60,986	756	2,838	7,126	8,161	7,864	9,246	11,730	3,485	5,058	3,424	873	425	11,507	37,916	11,563
2008	61,398	788	2,912	7,051	8,220	7,907	9,149	11,797	3,641	5,157	3,441	918	417	11,514	38,090	11,794
2009	61,792	784	2,994	7,017	8,220	7,993	9,012	11,946	3,719	5,279	3,458	933	437	11,549	38,236	12,007
Males																
1981	27,412	374	1,400	4,184	4,596	4,035	3,409	4,711	1,376	2,264	922	..	..	6,439	17,646	3,327
1986	27,542	384	1,478	3,664	4,663	4,022	3,864	4,572	1,463	2,206	1,060	166	..	5,968	18,142	3,432
1991	27,909	403	1,572	3,655	4,146	4,432	3,949	4,732	1,390	2,272	1,146	166	46	5,976	18,303	3,630
1996	28,287	369	1,547	3,857	3,652	4,540	3,954	5,244	1,360	2,311	1,187	201	65	6,148	18,375	3,764
2001	28,832	338	1,445	3,906	3,672	4,215	4,382	5,534	1,412	2,308	1,308	227	85	6,077	18,827	3,928
2002	28,961	338	1,407	3,896	3,760	4,113	4,461	5,593	1,414	2,325	1,338	226	89	6,036	18,947	3,978
2003	29,104	349	1,383	3,867	3,858	4,022	4,513	5,644	1,440	2,346	1,369	219	94	6,004	19,072	4,028
2004	29,274	362	1,376	3,831	3,956	3,959	4,545	5,690	1,479	2,365	1,392	223	98	5,969	19,227	4,078
2005	29,493	367	1,389	3,780	4,031	3,951	4,580	5,744	1,523	2,380	1,400	247	103	5,939	19,424	4,130
2006	29,689	374	1,416	3,707	4,110	3,939	4,584	5,803	1,585	2,379	1,413	273	106	5,909	19,609	4,171
2007	29,918	388	1,454	3,646	4,195	3,938	4,575	5,785	1,703	2,398	1,432	295	108	5,893	19,792	4,233
2008	30,154	403	1,492	3,607	4,216	3,986	4,533	5,814	1,780	2,449	1,452	313	108	5,894	19,938	4,323
2009	30,374	402	1,533	3,591	4,211	4,047	4,466	5,884	1,818	2,511	1,472	320	119	5,912	20,040	4,422
Females																
1981	28,946	356	1,327	3,963	4,423	3,975	3,365	4,829	1,559	2,931	1,756	..	..	6,104	16,134	6,708
1986	29,142	364	1,408	3,480	4,538	3,985	3,847	4,639	1,606	2,814	1,911	550	..	5,678	16,583	6,881
1991	29,530	387	1,505	3,487	4,021	4,466	3,968	4,769	1,498	2,795	1,972	460	202	5,709	16,894	6,927
1996	29,877	350	1,472	3,687	3,579	4,591	4,005	5,309	1,426	2,755	1,942	509	252	5,870	17,123	6,885
2001	30,281	324	1,375	3,718	3,589	4,260	4,465	5,634	1,473	2,640	1,987	526	292	5,786	17,579	6,917
2002	30,358	323	1,345	3,706	3,644	4,149	4,542	5,713	1,478	2,642	2,006	513	299	5,748	17,673	6,937
2003	30,448	331	1,321	3,677	3,721	4,056	4,592	5,766	1,509	2,654	2,029	487	305	5,712	17,751	6,984
2004	30,568	343	1,309	3,641	3,789	3,990	4,640	5,816	1,548	2,663	2,040	479	310	5,673	17,855	7,040
2005	30,742	349	1,323	3,590	3,860	3,981	4,665	5,872	1,591	2,666	2,020	509	316	5,645	17,995	7,102
2006	30,895	357	1,349	3,531	3,916	3,953	4,676	5,941	1,656	2,650	2,003	547	317	5,624	18,099	7,172
2007	31,068	368	1,383	3,480	3,966	3,926	4,671	5,945	1,782	2,660	1,992	578	317	5,614	18,124	7,330
2008	31,244	385	1,420	3,444	4,004	3,921	4,616	5,983	1,861	2,708	1,988	605	309	5,620	18,153	7,472
2009	31,418	383	1,462	3,426	4,010	3,946	4,546	6,061	1,901	2,768	1,986	612	318	5,637	18,196	7,585
England and Wales																
Persons																
1981	49,634	634	2,372	7,085	7,873	7,086	5,996	8,433	2,607	4,619	2,388	383	157	10,910	29,796	8,928
1986	49,999	654	2,522	6,226	8,061	7,052	6,856	8,136	2,725	4,470	2,655	461	182	10,161	30,647	9,190
1991	50,748	698	2,713	6,248	7,165	7,862	7,022	8,407	2,553	4,506	2,790	561	223	10,247	31,100	9,400
1996	51,410	637	2,668	6,636	6,336	8,076	7,017	9,363	2,457	4,496	2,801	639	285	10,584	31,353	9,474
2001	52,360	589	2,502	6,740	6,387	7,536	7,816	9,898	2,549	4,377	2,947	677	340	10,495	32,226	9,639
2002	52,567	588	2,444	6,727	6,521	7,354	7,964	10,016	2,555	4,394	2,989	664	351	10,435	32,433	9,699
2003	52,792	607	2,403	6,680	6,685	7,198	8,059	10,102	2,606	4,422	3,037	634	361	10,385	32,623	9,784
2004	53,053	629	2,388	6,616	6,842	7,084	8,133	10,176	2,675	4,445	3,063	632	370	10,323	32,856	9,875
2005	53,416	639	2,414	6,525	6,979	7,073	8,193	10,264	2,757	4,461	3,052	680	378	10,274	33,164	9,978
2006	53,726	653	2,462	6,408	7,101	7,036	8,212	10,369	2,874	4,444	3,045	740	382	10,231	33,418	10,077
2007	54,082	675	2,528	6,311	7,224	7,003	8,207	10,349	3,094	4,469	3,050	787	385	10,210	33,600	10,272
2008	54,455	703	2,595	6,247	7,279	7,038	8,126	10,402	3,238	4,558	3,063	829	378	10,219	33,754	10,482
2009	54,809	699	2,668	6,221	7,278	7,109	8,011	10,533	3,307	4,669	3,077	841	396	10,255	33,882	10,672
Males																
1981	24,160	324	1,218	3,639	4,011	3,569	3,024	4,178	1,227	2,020	825	94	32	5,601	15,589	2,970
1986	24,311	335	1,292	3,194	4,083	3,542	3,438	4,053	1,302	1,972	951	115	35	5,208	16,031	3,072
1991	24,681	356	1,385	3,198	3,638	3,920	3,504	4,199	1,234	2,027	1,029	150	42	5,240	16,193	3,248
1996	25,030	327	1,368	3,393	3,202	4,020	3,489	4,659	1,205	2,059	1,067	182	59	5,416	16,247	3,367
2001	25,574	301	1,281	3,453	3,231	3,758	3,881	4,907	1,252	2,052	1,175	206	77	5,376	16,688	3,510
2002	25,700	301	1,249	3,448	3,312	2,670	3,956	4,957	1,253	2,066	1,202	204	81	5,345	16,802	3,554
2003	25,837	312	1,229	3,424	3,402	3,592	4,006	5,000	1,276	2,084	1,229	198	85	5,322	16,918	3,597
2004	25,991	323	1,224	3,393	3,496	3,536	4,035	5,036	1,310	2,100	1,248	202	89	5,293	17,058	3,640
2005	26,193	327	1,236	3,347	3,566	3,529	4,071	5,080	1,351	2,113	1,256	224	94	5,268	17,239	3,685
2006	26,366	334	1,261	3,282	3,638	3,515	4,077	5,129	1,408	2,111	1,267	248	96	5,243	17,402	3,722
2007	26,570	346	1,296	3,229	3,716	3,511	4,074	5,109	1,513	2,127	1,283	268	99	5,229	17,566	3,776
2008	26,783	360	1,329	3,195	3,736	3,552	4,039	5,133	1,584	2,172	1,300	285	99	5,231	17,696	3,856
2009	26,980	358	1,366	3,183	3,729	3,604	3,982	5,196	1,617	2,228	1,318	290	109	5,249	17,786	3,945
Females																
1981	25,474	310	1,154	3,446	3,863	3,517	2,972	4,255	1,380	2,599	1,564	289	126	5,309	14,207	5,958
1986	25,687	319	1,231	3,032	3,978	3,509	3,418	4,083	1,422	2,498	1,704	346	148	4,953	14,616	6,118
1991	26,067	342	1,328	3,050	3,527	3,943	3,517	4,208	1,319	2,479	1,761	411	181	5,007	14,908	6,152
1996	26,381	310	1,300	3,243	3,134	4,056	3,528	4,704	1,252	2,437	1,734	457	227	5,168	15,106	6,107
2001	26,786	288	1,220	3,287	3,156	3,778	3,935	4,992	1,297	2,326	1,771	471	263	5,119	15,538	6,129
2002	26,867	287	1,195	3,279	3,209	3,684	4,007	5,059	1,302	2,328	1,787	460	270	5,090	15,631	6,146
2003	26,955	295	1,174	3,256	3,283	3,606	4,053	5,102	1,330	2,338	1,808	436	275	5,063	15,705	6,187
2004	27,062	306	1,164	3,223	3,346	3,549	4,098	5,141	1,365	2,345	1,815	430	280	5,029	15,798	6,235
2005	27,224	312	1,178	3,179	3,413	3,545	4,122	5,184	1,406	2,348	1,796	457	285	5,006	15,925	6,292
2006	27,359	319	1,201	3,126	3,463	3,521	4,134	5,240	1,466	2,333	1,778	492	286	4,989	16,015	6,356
2007	27,512	329	1,233	3,082	3,508	3,492	4,132	5,240	1,581	2,342	1,767	520	286	4,982	16,034	6,497
2008	27,672	343	1,266	3,052	3,543	3,486	4,087	5,269	1,654	2,386	1,762	544	279	4,989	16,058	6,626
2009	27,829	341	1,303	3,038	3,548	3,506	4,029	5,337	1,689	2,441	1,759	550	288	5,006	16,096	6,727

Note: This table includes the revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010.
Figures may not sum due to rounding

1 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 66 years for both sexes.

Sources: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 1.4 continued **Population: age and sex**

Constituent countries of the United Kingdom

Numbers (thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F [1]	65M/60F [1] and over
England																
Persons																
1981	46,821	598	2,235	6,678	7,440	6,703	5,663	7,948	2,449	4,347	2,249	362	149	10,285	28,133	8,403
1986	47,188	618	2,380	5,869	7,623	6,682	6,478	7,672	2,559	4,199	2,501	435	172	9,583	28,962	8,643
1991	47,875	660	2,560	5,885	6,772	7,460	6,633	7,920	2,399	4,222	2,626	529	210	9,658	29,390	8,827
1996	48,519	603	2,523	6,255	5,985	7,667	6,638	8,822	2,310	4,217	2,631	602	269	9,985	29,639	8,895
2001	49,450	558	2,366	6,359	6,032	7,171	7,407	9,327	2,395	4,113	2,764	638	321	9,908	30,487	9,055
2002	49,649	558	2,312	6,347	6,157	7,000	7,550	9,438	2,399	4,129	2,803	625	331	9,854	30,685	9,110
2003	49,863	576	2,274	6,303	6,311	6,853	7,642	9,520	2,445	4,155	2,850	596	340	9,808	30,866	9,188
2004	50,110	597	2,261	6,243	6,459	6,746	7,713	9,590	2,509	4,175	2,876	593	349	9,751	31,085	9,273
2005	50,466	607	2,288	6,158	6,591	6,738	7,772	9,675	2,586	4,190	2,865	638	357	9,709	31,387	9,370
2006	50,764	620	2,335	6,048	6,705	6,704	7,791	9,777	2,697	4,171	2,860	695	360	9,670	31,631	9,463
2007	51,106	641	2,398	5,958	6,819	6,674	7,789	9,760	2,906	4,193	2,866	739	363	9,654	31,807	9,646
2008	51,465	667	2,462	5,901	6,870	6,707	7,715	9,813	3,041	4,276	2,878	779	356	9,666	31,956	9,842
2009	51,810	664	2,532	5,880	6,866	6,775	7,611	9,941	3,107	4,380	2,892	790	373	9,704	32,083	10,022
Males																
1981	22,795	306	1,147	3,430	3,790	3,377	2,856	3,938	1,154	1,902	777	89	30	5,280	14,717	2,798
1986	22,949	317	1,219	3,010	3,862	3,357	3,249	3,822	1,224	1,853	897	108	33	4,911	15,147	2,891
1991	23,291	336	1,307	3,011	3,439	3,721	3,311	3,957	1,159	1,900	970	141	39	4,938	15,302	3,050
1996	23,629	309	1,294	3,198	3,023	3,818	3,302	4,390	1,133	1,932	1,003	172	55	5,110	15,358	3,161
2001	24,166	285	1,212	3,257	3,053	3,580	3,681	4,624	1,176	1,928	1,103	194	73	5,075	15,793	3,298
2002	24,287	286	1,181	3,252	3,129	3,498	3,754	4,672	1,176	1,941	1,128	193	77	5,046	15,903	3,338
2003	24,415	296	1,163	3,231	3,213	3,423	3,802	4,713	1,197	1,958	1,154	186	80	5,026	16,011	3,378
2004	24,561	306	1,159	3,201	3,301	3,369	3,830	4,747	1,228	1,972	1,172	190	84	5,000	16,142	3,419
2005	24,756	310	1,171	3,158	3,368	3,363	3,866	4,790	1,267	1,983	1,179	210	88	4,977	16,317	3,461
2006	24,924	317	1,196	3,098	3,436	3,351	3,873	4,839	1,321	1,981	1,190	233	91	4,955	16,475	3,494
2007	25,119	329	1,229	3,048	3,509	3,348	3,871	4,820	1,421	1,995	1,205	251	93	4,943	16,631	3,544
2008	25,323	342	1,261	3,018	3,526	3,387	3,839	4,844	1,487	2,036	1,222	268	93	4,947	16,757	3,619
2009	25,515	340	1,296	3,008	3,518	3,436	3,787	4,907	1,519	2,089	1,239	273	102	4,966	16,845	3,703
Females																
1981	24,026	292	1,088	3,248	3,650	3,327	2,807	4,009	1,295	2,445	1,472	273	119	5,004	13,416	5,605
1986	24,239	301	1,161	2,859	3,761	3,325	3,229	3,850	1,335	2,346	1,604	326	140	4,672	13,815	5,752
1991	24,584	324	1,253	2,873	3,333	3,739	3,322	3,964	1,239	2,323	1,656	388	171	4,720	14,088	5,777
1996	24,890	293	1,229	3,056	2,961	3,849	3,336	4,432	1,177	2,286	1,628	430	214	4,876	14,281	5,734
2001	25,284	273	1,154	3,102	2,979	3,591	3,726	4,702	1,219	2,185	1,661	444	248	4,834	14,694	5,757
2002	25,362	273	1,131	3,094	3,028	3,502	3,796	4,766	1,222	2,187	1,675	433	254	4,807	14,783	5,772
2003	25,448	280	1,111	3,072	3,098	3,430	3,839	4,807	1,248	2,197	1,696	410	260	4,782	14,856	5,810
2004	25,549	291	1,103	3,042	3,158	3,376	3,882	4,843	1,281	2,204	1,703	403	264	4,752	14,943	5,855
2005	25,710	296	1,116	3,000	3,223	3,375	3,906	4,885	1,319	2,206	1,686	428	269	4,731	15,070	5,909
2006	25,840	303	1,139	2,950	3,269	3,353	3,918	4,939	1,376	2,191	1,670	461	270	4,716	15,156	5,968
2007	25,987	312	1,170	2,910	3,311	3,326	3,918	4,939	1,485	2,198	1,660	488	270	4,711	15,175	6,101
2008	26,141	326	1,202	2,883	3,344	3,320	3,876	4,969	1,554	2,239	1,656	511	263	4,719	15,199	6,223
2009	26,295	324	1,236	2,872	3,348	3,339	3,823	5,034	1,588	2,291	1,653	517	271	4,738	15,238	6,319
Wales																
Persons																
1981	2,813	36	136	407	434	383	333	485	158	272	139	21	8	626	1,663	525
1986	2,811	37	143	357	438	369	378	464	166	271	154	26	10	578	1,686	547
1991	2,873	38	153	363	393	402	389	486	154	284	164	32	13	589	1,711	573
1996	2,891	34	146	381	352	409	379	541	147	279	170	37	17	598	1,714	578
2001	2,910	32	136	382	356	365	409	572	154	264	183	39	20	587	1,739	584
2002	2,918	30	132	380	364	354	414	578	156	265	185	39	20	582	1,748	589
2003	2,929	31	129	377	374	345	417	582	161	268	187	38	21	577	1,757	595
2004	2,943	32	127	373	383	339	421	586	166	270	188	39	21	572	1,770	602
2005	2,950	32	126	367	388	336	421	588	171	271	186	42	21	566	1,777	608
2006	2,962	33	127	360	396	332	420	592	177	272	186	45	22	561	1,786	615
2007	2,976	34	130	353	405	329	417	589	188	276	185	48	22	556	1,793	627
2008	2,990	36	133	346	410	330	411	589	197	282	185	50	22	553	1,798	639
2009	2,999	35	136	341	412	334	400	592	200	289	185	51	23	550	1,799	650
Males																
1981	1,365	18	70	209	221	193	168	240	73	118	48	5	2	321	871	173
1986	1,362	19	73	184	221	186	190	231	79	119	54	7	2	297	885	181
1991	1,391	20	78	186	199	199	194	242	74	128	60	8	2	302	891	198
1996	1,401	17	74	195	179	203	187	269	72	128	64	10	3	306	890	206
2001	1,409	16	69	196	179	178	200	283	75	124	73	12	4	301	895	212
2002	1,413	16	68	195	183	172	202	285	77	125	74	12	5	299	899	215
2003	1,422	16	66	194	190	168	204	287	79	127	75	11	5	296	907	218
2004	1,431	16	66	191	195	166	205	288	82	128	76	12	5	294	916	221
2005	1,437	17	65	188	198	166	205	289	84	129	76	13	5	291	922	224
2006	1,442	17	65	185	202	164	204	291	87	130	77	15	5	288	927	227
2007	1,451	17	67	181	208	163	203	289	93	132	78	16	6	286	935	231
2008	1,459	18	68	178	210	165	200	288	97	135	78	17	6	284	939	236
2009	1,466	18	70	175	211	167	195	289	98	139	79	17	6	282	941	242
Females																
1981	1,448	18	66	199	213	190	165	246	85	154	91	16	6	305	791	352
1986	1,449	18	70	173	217	184	188	233	87	152	100	20	8	282	801	366
1991	1,482	19	75	177	194	203	195	244	80	156	104	24	10	288	820	375
1996	1,490	16	71	186	173	206	192	272	75	151	106	27	13	293	825	373
2001	1,502	15	66	186	177	187	209	289	78	141	110	27	15	286	844	372
2002	1,505	15	65	185	181	182	212	293	80	140	111	27	16	283	848	374
2003	1,507	15	63	183	184	176	214	295	82	141	112	27	16	280	850	377
2004	1,513	15	62	182	188	172	216	298	85	142	112	26	16	278	855	380
2005	1,513	16	61	179	190	170	216	299	87	142	110	28	16	275	855	383
2006	1,520	16	62	176	194	168	216	301	90	143	108	30	16	273	859	387
2007	1,525	16	63	172	197	166	215	300	96	144	107	32	16	271	858	395
2008	1,531	17	65	168	200	166	211	301	100	147	107	33	16	269	859	403
2009	1,534	17	66	166	201	167	206	303	102	150	106	34	17	268	858	408

1 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 66 years for both sexes.

Table 1.4 continued **Population: age and sex**

Constituent countries of the United Kingdom

Numbers (thousands)

Mid-year	All ages	Age group														
		Under 1	1–4	5–14	15–24	25–34	35–44	45–59	60–64	65–74	75–84	85–89	90 and over	Under 16	16–64M/59F [1]	65M/60F [1] and over
Scotland																
Persons																
1981	5,180	69	249	780	875	724	603	880	260	460	232	35	14	1,188	3,110	882
1986	5,112	66	257	656	863	739	665	849	273	435	252	42	15	1,061	3,161	890
1991	5,083	66	258	634	746	795	696	853	265	441	259	51	19	1,021	3,151	912
1996	5,092	59	252	643	651	798	722	925	259	448	256	57	24	1,019	3,151	922
2001	5,064	52	224	629	633	696	782	979	262	447	272	59	29	970	3,150	944
2002	5,055	51	217	622	639	669	788	993	262	449	276	58	30	955	3,150	950
2003	5,057	52	212	614	648	648	793	1,008	265	452	281	55	31	943	3,156	958
2004	5,078	54	210	609	653	635	796	1,025	270	455	286	54	31	935	3,175	968
2005	5,095	55	211	600	659	629	794	1,042	273	457	286	59	32	929	3,191	975
2006	5,117	55	213	588	668	627	790	1,058	280	456	287	63	32	922	3,213	983
2007	5,144	57	218	576	676	629	781	1,060	301	457	290	67	32	917	3,227	1,001
2008	5,169	60	223	567	681	634	766	1,068	312	463	293	69	31	914	3,238	1,017
2009	5,194	60	229	561	685	645	746	1,079	320	470	295	72	32	912	3,249	1,033
Males																
1981	2,495	35	128	400	445	364	298	424	118	194	77	8	3	610	1,603	282
1986	2,462	34	131	336	438	371	331	410	127	184	86	10	3	543	1,636	283
1991	2,445	34	132	324	377	394	345	415	124	192	91	13	3	522	1,623	299
1996	2,447	30	128	328	327	392	355	454	122	198	93	15	5	521	1,616	310
2001	2,434	26	115	322	319	337	379	483	125	200	103	17	6	497	1,610	327
2002	2,432	26	111	319	324	325	382	490	125	202	106	17	7	489	1,612	331
2003	2,435	26	108	314	329	315	383	496	126	204	108	16	7	483	1,616	336
2004	2,446	28	107	312	332	310	384	503	129	207	111	16	7	479	1,627	341
2005	2,456	28	107	307	335	309	382	511	131	208	112	18	7	476	1,635	345
2006	2,469	28	109	301	340	310	380	517	135	208	113	20	8	472	1,649	349
2007	2,486	29	112	295	345	313	375	517	146	210	116	21	8	469	1,662	354
2008	2,500	30	115	290	348	317	368	520	152	213	118	22	8	468	1,672	361
2009	2,515	31	118	287	350	324	358	524	156	217	120	23	8	467	1,680	368
Females																
1981	2,685	33	121	380	430	359	305	456	142	265	155	27	11	579	1,506	600
1986	2,649	32	126	320	424	368	334	439	146	250	166	32	12	518	1,525	606
1991	2,639	32	126	309	369	402	351	437	141	249	168	38	16	499	1,528	612
1996	2,645	28	123	315	324	406	367	470	137	250	164	42	20	498	1,535	612
2001	2,630	26	109	307	314	359	403	496	137	246	169	43	23	473	1,540	617
2002	2,623	25	106	303	315	344	406	504	137	247	171	41	23	466	1,538	619
2003	2,623	25	104	300	318	332	410	512	139	248	173	39	24	460	1,540	622
2004	2,632	26	103	297	321	325	412	521	141	248	175	38	24	457	1,549	627
2005	2,639	26	103	293	324	320	411	531	142	249	174	41	25	454	1,556	630
2006	2,648	27	104	287	328	317	410	540	145	247	174	43	25	450	1,564	634
2007	2,659	28	106	281	332	316	406	542	155	247	174	45	24	448	1,564	646
2008	2,668	29	109	277	334	317	398	548	160	250	175	47	24	446	1,566	656
2009	2,679	29	112	274	335	321	388	556	164	253	175	49	24	445	1,569	664
Northern Ireland																
Persons																
1981	1,543	27	106	282	271	200	175	227	68	116	57	..	..	444	874	224
1986	1,574	28	107	261	277	217	190	227	71	115	64	16	..	423	917	234
1991	1,607	26	106	260	256	240	200	241	70	121	69	14	6	417	945	246
1996	1,662	24	99	266	244	257	220	266	70	123	72	15	7	415	993	253
2001	1,689	22	93	255	240	243	248	290	74	123	77	16	7	397	1,030	262
2002	1,697	22	91	253	243	238	251	296	75	125	79	16	7	393	1,037	266
2003	1,703	22	89	251	246	233	254	301	78	126	81	16	8	388	1,044	271
2004	1,710	22	87	248	250	229	256	305	81	127	82	16	8	383	1,052	275
2005	1,724	23	88	245	253	228	257	310	84	128	83	17	8	381	1,064	280
2006	1,742	23	89	242	258	229	259	316	87	130	83	18	8	380	1,077	284
2007	1,759	24	91	239	260	231	259	321	90	132	84	19	8	380	1,089	290
2008	1,775	26	94	237	260	235	257	327	91	136	85	20	9	381	1,098	296
2009	1,789	26	97	235	258	239	255	333	92	140	86	20	9	382	1,105	302
Males																
1981	757	14	54	145	140	102	87	109	32	50	21	..	..	228	454	75
1986	768	14	55	134	142	109	95	110	33	50	23	4	..	217	474	77
1991	783	13	54	133	131	119	100	118	32	53	26	4	1	213	487	83
1996	810	12	51	136	124	128	109	131	33	54	27	4	1	212	511	87
2001	824	11	48	131	122	120	122	144	35	56	30	5	2	204	529	92
2002	829	11	47	130	124	117	123	147	36	56	31	5	2	202	534	94
2003	833	11	46	129	126	115	124	149	38	57	31	5	2	199	538	95
2004	836	11	45	127	128	113	125	151	39	58	32	5	2	197	542	97
2005	844	12	45	126	130	113	126	153	41	59	32	5	2	196	550	99
2006	853	12	46	124	132	113	127	156	42	60	33	6	2	195	558	101
2007	862	13	47	123	134	114	127	158	44	61	33	6	2	195	564	103
2008	871	13	48	121	133	117	127	161	44	63	34	6	2	196	569	106
2009	879	13	50	121	132	120	125	164	45	66	35	7	2	196	573	109
Females																
1981	786	13	52	137	130	98	88	118	37	66	37	..	..	216	420	150
1986	805	13	52	127	135	107	96	118	38	65	41	12	..	206	442	157
1991	824	13	52	127	125	121	100	123	38	67	44	10	4	203	458	163
1996	851	11	49	130	120	129	110	135	37	69	45	11	6	203	482	167
2001	865	10	45	124	119	123	126	146	38	68	47	11	6	193	501	170
2002	868	11	44	124	119	120	128	149	39	68	48	11	6	191	504	173
2003	870	10	43	122	120	118	129	152	40	68	49	11	6	189	506	175
2004	874	11	42	121	122	116	130	154	42	69	50	11	6	187	509	179
2005	880	11	43	119	124	115	131	157	43	69	50	11	6	186	514	181
2006	888	11	43	118	126	115	132	160	45	69	51	12	6	185	520	183
2007	897	12	44	116	127	117	132	163	46	70	51	13	6	185	526	187
2008	904	12	46	115	127	118	131	165	47	72	51	13	6	186	529	190
2009	910	12	47	114	126	120	129	169	47	74	51	13	6	186	532	193

1 Between 2010 and 2020, state pension age will change from 65 years for men and 60 years for women to 66 years for both sexes.

Table 1.5 Population: age, sex and legal marital status

England and Wales

Numbers (thousands)

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
Aged											
16 and over											
1971	36,818	4,173	12,522	187	682	17,563	3,583	12,566	296	2,810	19,255
1976	37,486	4,369	12,511	376	686	17,941	3,597	12,538	533	2,877	19,545
1981	38,724	5,013	12,238	611	698	18,559	4,114	12,284	828	2,939	20,165
1986	39,837	5,625	11,867	917	695	19,103	4,617	12,000	1,165	2,953	20,734
1991	40,501	5,891	11,636	1,187	727	19,441	4,817	11,833	1,459	2,951	21,060
1996	40,827	6,225	11,310	1,346	733	19,614	5,168	11,433	1,730	2,881	21,212
2001	41,865	6,894	11,090	1,482	733	20,198	5,798	11,150	1,975	2,745	21,667
2002	42,135	7,062	11,043	1,524	730	20,358	5,944	11,094	2,031	2,709	21,777
2003	42,409	7,226	10,995	1,571	726	20,517	6,102	11,033	2,087	2,669	21,892
2004	42,731	7,419	10,941	1,617	722	20,700	6,279	10,980	2,144	2,628	22,031
2005	43,141	7,623	10,923	1,662	719	20,927	6,486	10,943	2,198	2,588	22,214
2006	43,494	7,833	10,881	1,696	716	21,126	6,683	10,893	2,244	2,548	22,367
2007	43,860	8,049	10,851	1,724	715	21,338	6,871	10,851	2,289	2,511	22,521
2008	44,217	8,238	10,849	1,746	713	21,546	7,057	10,812	2,326	2,477	22,671
16–19											
1971	2,666	1,327	34	0	0	1,362	1,163	142	0	0	1,305
1976	2,901	1,454	28	0	0	1,482	1,289	129	0	0	1,419
1981	3,310	1,675	20	0	0	1,694	1,523	93	0	0	1,616
1986	3,131	1,587	10	0	0	1,596	1,484	49	1	0	1,535
1991	2,665	1,358	8	0	0	1,366	1,267	32	0	0	1,300
1996	2,402	1,209	6	0	0	1,216	1,164	21	0	0	1,186
2001	2,567	1,304	5	1	1	1,312	1,237	16	1	1	1,255
2002	2,630	1,351	5	1	1	1,357	1,258	13	1	1	1,273
2003	2,703	1,392	4	1	1	1,397	1,293	12	0	1	1,306
2004	2,771	1,424	3	0	0	1,428	1,331	11	0	0	1,343
2005	2,801	1,434	2	0	0	1,436	1,355	10	0	0	1,365
2006	2,829	1,457	2	0	0	1,459	1,363	7	0	0	1,370
2007	2,861	1,473	2	0	0	1,475	1,379	7	0	0	1,386
2008	2,859	1,467	2	0	0	1,469	1,383	7	0	0	1,390
20–24											
1971	3,773	1,211	689	3	0	1,904	745	1,113	9	2	1,869
1976	3,395	1,167	557	4	0	1,728	725	925	16	2	1,667
1981	3,744	1,420	466	10	1	1,896	1,007	811	27	2	1,847
1986	4,171	1,768	317	14	0	2,099	1,383	657	32	1	2,072
1991	3,911	1,717	242	12	0	1,971	1,421	490	29	1	1,941
1996	3,291	1,538	117	3	0	1,658	1,361	260	11	1	1,633
2001	3,157	1,501	74	3	1	1,579	1,390	178	8	1	1,578
2002	3,212	1,530	73	3	1	1,606	1,427	170	8	1	1,606
2003	3,281	1,568	74	3	1	1,645	1,459	166	8	1	1,636
2004	3,376	1,632	75	3	1	1,712	1,491	163	8	2	1,664
2005	3,477	1,693	73	3	1	1,771	1,539	157	8	2	1,706
2006	3,558	1,741	67	3	1	1,812	1,591	146	7	1	1,746
2007	3,661	1,813	64	3	1	1,881	1,637	136	6	1	1,780
2008	3,741	1,855	61	2	1	1,919	1,689	126	6	1	1,822
25–29											
1971	3,267	431	1,206	16	1	1,654	215	1,367	29	4	1,614
1976	3,758	533	1,326	39	2	1,900	267	1,522	65	5	1,859
1981	3,372	588	1,057	54	1	1,700	331	1,247	89	4	1,671
1986	3,713	835	949	79	1	1,863	527	1,207	113	4	1,850
1991	4,154	1,132	856	82	1	2,071	800	1,158	123	2	2,083
1996	3,950	1,273	650	46	1	1,970	977	906	93	3	1,980
2001	3,487	1,293	420	28	1	1,742	1,059	625	58	3	1,745
2002	3,365	1,277	384	26	1	1,688	1,049	574	52	3	1,676
2003	3,284	1,265	356	24	1	1,647	1,051	536	48	2	1,638
2004	3,280	1,278	339	23	1	1,641	1,078	513	46	2	1,639
2005	3,354	1,320	331	23	1	1,675	1,128	504	45	2	1,679
2006	3,434	1,371	324	22	1	1,718	1,178	490	45	2	1,716
2007	3,526	1,422	326	22	1	1,770	1,223	486	44	2	1,756
2008	3,617	1,486	329	21	1	1,837	1,259	477	42	2	1,780

Note: Figures may not sum due to rounding.

Source: Office for National Statistics.

Table 1.5 continued **Population: age, sex and legal marital status**

England and Wales

Numbers (thousands)

Mid-year	Total population	Males					Females				
		Single	Married	Divorced	Widowed	Total	Single	Married	Divorced	Widowed	Total
30–34											
1971	2,897	206	1,244	23	3	1,475	111	1,269	34	8	1,422
1976	3,220	236	1,338	55	3	1,632	118	1,388	75	8	1,588
1981	3,715	318	1,451	97	3	1,869	165	1,544	129	9	1,846
1986	3,338	355	1,197	124	2	1,679	206	1,293	154	6	1,660
1991	3,708	520	1,172	155	2	1,849	335	1,330	189	5	1,859
1996	4,126	776	1,135	138	2	2,050	551	1,316	201	7	2,076
2001	4,050	934	971	108	2	2,016	711	1,142	174	7	2,033
2002	3,992	951	927	103	2	1,984	739	1,097	166	6	2,009
2003	3,919	964	881	99	2	1,947	760	1,049	158	6	1,972
2004	3,810	967	834	94	2	1,897	768	993	147	5	1,913
2005	3,724	972	793	88	2	1,856	778	948	137	5	1,868
2006	3,606	972	744	81	2	1,799	782	896	124	5	1,808
2007	3,473	962	701	74	1	1,738	777	840	114	4	1,735
2008	3,414	965	678	68	1	1,713	787	804	105	4	1,701
35–44											
1971	5,736	317	2,513	48	13	2,891	201	2,529	66	48	2,845
1976	5,608	286	2,442	104	12	2,843	167	2,427	129	42	2,765
1981	5,996	316	2,519	178	12	3,024	170	2,540	222	41	2,972
1986	6,856	396	2,738	293	12	3,438	213	2,815	350	39	3,418
1991	7,022	477	2,632	384	11	3,504	280	2,760	444	34	3,517
1996	7,017	653	2,426	398	12	3,489	427	2,568	497	36	3,528
2001	7,816	963	2,494	411	12	3,881	692	2,649	558	36	3,935
2002	7,964	1,027	2,499	420	12	3,957	749	2,653	570	35	4,007
2003	8,058	1,080	2,488	427	12	4,007	801	2,638	579	33	4,051
2004	8,133	1,126	2,466	433	11	4,036	853	2,623	588	32	4,097
2005	8,194	1,173	2,452	436	11	4,073	903	2,597	590	31	4,121
2006	8,213	1,219	2,419	431	11	4,080	955	2,564	585	30	4,134
2007	8,209	1,259	2,385	422	10	4,076	1,004	2,525	574	29	4,132
2008	8,128	1,289	2,333	407	10	4,039	1,044	2,463	555	27	4,090
45–64											
1971	11,887	502	4,995	81	173	5,751	569	4,709	125	733	6,136
1976	11,484	496	4,787	141	160	5,583	462	4,568	188	683	5,901
1981	11,040	480	4,560	218	147	5,405	386	4,358	271	620	5,635
1986	10,860	461	4,422	331	141	5,355	327	4,220	388	570	5,505
1991	10,960	456	4,394	456	127	5,433	292	4,211	521	503	5,527
1996	11,820	528	4,587	628	121	5,864	318	4,466	732	440	5,956
2001	12,447	644	4,647	747	121	6,159	391	4,578	918	401	6,289
2002	12,573	670	4,647	775	119	6,211	413	4,599	959	391	6,362
2003	12,710	700	4,653	807	118	6,278	437	4,616	999	380	6,432
2004	12,852	734	4,657	840	116	6,347	464	4,630	1,041	370	6,505
2005	13,021	771	4,672	873	115	6,431	496	4,650	1,084	361	6,590
2006	13,243	813	4,703	906	115	6,537	534	4,688	1,130	355	6,706
2007	13,439	857	4,716	935	114	6,621	576	4,719	1,175	347	6,818
2008	13,633	906	4,734	962	113	6,715	624	4,739	1,216	339	6,918
65 and over											
1971	6,592	179	1,840	17	492	2,527	580	1,437	32	2,016	4,065
1976	7,119	197	2,033	33	510	2,773	569	1,579	60	2,138	4,347
1981	7,548	216	2,167	54	534	2,971	533	1,692	90	2,263	4,578
1986	7,768	223	2,234	76	539	3,072	477	1,759	127	2,333	4,696
1991	8,080	231	2,332	99	586	3,248	422	1,853	152	2,405	4,832
1996	8,221	247	2,390	134	597	3,367	369	1,897	196	2,393	4,854
2001	8,342	254	2,478	183	595	3,510	318	1,960	259	2,295	4,832
2002	8,398	255	2,509	196	594	3,554	308	1,987	276	2,272	4,844
2003	8,454	257	2,539	209	592	3,597	301	2,017	295	2,245	4,857
2004	8,510	258	2,568	223	591	3,640	293	2,046	314	2,216	4,870
2005	8,571	259	2,599	238	589	3,685	286	2,078	334	2,187	4,885
2006	8,611	260	2,622	252	587	3,722	279	2,102	353	2,155	4,889
2007	8,690	263	2,658	268	587	3,775	274	2,138	375	2,128	4,915
2008	8,825	268	2,713	285	587	3,854	271	2,195	401	2,103	4,971

See notes on first page of table.

Table 2.1 Vital statistics summary

Constituent countries of the United Kingdom — Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate	Number	Rate[4]	Number	Rate[5]	Number	Rate[3]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
United Kingdom																			
1976		675.5	12.0	61.1	90	406.0	..	:	:	136.0	..	680.8	12.1	9.79	14.5	6.68	9.9	12.25	18.0
1981		730.7	13.0	91.3	125	397.8	49.4	:	:	157.0	11.3	658.0	11.7	8.16	11.2	4.93	6.7	8.79	12.0
1986		754.8	13.3	154.3	204	393.9	..	:	:	168.3	..	660.7	11.7	7.18	9.5	4.00	5.3	7.31	9.6
1991		792.3	13.8	236.1	298	349.7	..	:	:	173.5	..	646.2	11.2	5.82	7.4	3.46	4.4	6.45	8.1
1996		733.2	12.6	260.4	355	317.5	..	:	:	171.7	..	636.0	10.9	4.50	6.1	3.00	4.1	6.41	8.7
2001		669.1	11.3	268.0	401	286.1	..	:	:	156.8	..	602.3	10.2	3.69	5.5	2.45	3.7	5.40	8.0
2002		668.8	11.3	271.7	406	293.0	..	:	:	160.7	..	608.0	10.3	3.54	5.3	2.37	3.5	5.59	8.3
2003		695.6	11.7	288.5	415	308.6	..	:	:	166.7	..	612.1	10.3	3.69	5.3	2.51	3.6	5.95	8.5
2004		716.0	12.0	302.6	423	313.6	..	:	:	167.8	..	584.8	9.8	3.66	5.1	2.49	3.5	6.03	8.4
2005		722.5	12.0	310.2	429	286.8	..	1.95[10]	..	155.0	..	583.0	9.7	3.67	5.1	2.52	3.5	5.78	8.0
2006		748.6	12.4	326.8	437	277.6	..	16.11	..	148.2	..	572.2	9.4	3.74	5.0	2.61	3.5	5.94	7.9
2007		772.2	12.7	343.2	444	274.0	..	8.73	..	144.3	..	574.7	9.4	3.74	4.8	2.55	3.3	6.00	7.7
2008		794.4	12.9	360.8	454	270.0[P]	..	7.17	..	136.0	..	579.7	9.4	3.75	4.7	2.56	3.2	6.02	7.5
2009		790.2[P]	12.8[P]	365.8[P]	463[P]	..	..	6.28[P]	..	..	..	559.6[P]	9.1[P]	3.68[P]	4.6[P]	2.51[P]	3.2[P]	6.04[P]	7.6[P]
2007	March	184.4	12.3	81.9	444	31.2	..	1.69	..	38.9	..	159.3	10.6	0.91	4.9	0.64	3.4	1.47	7.9
	June	189.8	12.5	82.6	435	76.6	..	2.37	..	37.2	..	138.0	9.1	0.99	5.2	0.66	3.5	1.53	8.0
	Sept	202.8	13.2	90.5	446	117.7	..	2.96	..	36.7	..	129.9	8.4	0.94	4.6	0.63	3.1	1.50	7.4
	Dec	195.3	12.7	88.1	451	48.4	..	1.71	..	31.4	..	147.5	9.6	0.90	4.6	0.62	3.2	1.50	7.6
2008	March	195.4	12.8	88.8	455	32.0[P]	..	1.25	..	35.5	..	155.6	10.2	0.95	4.9	0.66	3.4	1.53	7.8
	June	198.2	12.9	89.1	449	73.7[P]	..	1.93	..	34.4	..	140.2	9.2	0.88	4.4	0.59	3.0	1.48	7.4
	Sept	204.4	13.4	93.3	456	115.0[P]	..	2.46	..	33.9	..	130.3	8.4	0.97	4.7	0.67	3.3	1.47	7.2
	Dec	196.4	12.7	89.6	456	50.1[P]	..	1.53	..	32.3	..	153.5	9.9	0.95	4.8	0.64	3.2	1.54	7.8
2009	March	189.8[P]	12.5[P]	87.8[P]	463[P]	30.6[P]	..	0.98[P]	..	31.5[P]	..	157.9[P]	10.4[P]	0.93[P]	4.9[P]	0.62[P]	3.2[P]	1.49[P]	7.8[P]
	June	196.3[P]	12.7[P]	89.2[P]	455[P]	74.4[P]	..	1.66[P]	..	30.5[P]	..	131.9[P]	8.6[P]	0.94[P]	4.8[P]	0.63[P]	3.2[P]	1.51[P]	7.7[P]
	Sept	202.8[P]	13.0[P]	94.6[P]	466[P]	109.1[P]	..	2.28[P]	..	31.9[P]	..	126.4[P]	8.1[P]	0.89[P]	4.4[P]	0.64[P]	3.1[P]	1.54[P]	7.5[P]
	Dec	201.3[P]	12.9[P]	94.2[P]	468[P]	..	..	1.37[P]	..	.	.	143.5[P]	9.2[P]	0.91[P]	4.5[P]	0.63[P]	3.1[P]	1.50[P]	7.4[P]
2010	March	195.7[P]	12.8[P]	92.0[P]	470[P]	..	..	0.96[P]	..	..	..	153.3[P]	10.0[P]	0.91[P]	4.6[P]	0.63[P]	3.2[P]	1.48[P]	7.5[P]
	June	197.0[P]	12.7[P]	91.3[P]	463[P]	..	..	1.66[P]	..	..	..	133.4[P]	8.6[P]	0.88[P]	4.5[P]	0.62[P]	3.1[P]	1.45[P]	7.3[P]
England and Wales																			
1976		584.3	11.8	53.8	92	358.6	57.7	:	:	126.7	10.1	598.5	12.1	8.34	14.3	5.66	9.7	10.45	17.7
1981		634.5	12.8	81.0	128	352.0	49.6	:	:	145.7	11.9	577.9	11.6	7.02	11.1	4.23	6.7	7.56	11.8
1986		661.0	13.2	141.3	214	347.9	43.6	:	:	153.9	12.9	581.2	11.6	6.31	9.6	3.49	5.3	6.37	9.6
1991		699.2	13.8	211.3	302	306.8	36.0	:	:	158.7	13.5	570.0	11.2	5.16	7.4	3.05	4.4	5.65	8.0
1996		649.5	12.6	232.7	358	279.0	30.9	:	:	157.1	13.8	560.1	10.9	3.99	6.1	2.68	4.1	5.62	8.6
2001		594.6	11.4	238.1	400	249.2	25.4	:	:	143.8	12.9	530.4	10.1	3.27	5.5	2.15	3.6	4.76	8.0
2002		596.1	11.3	242.0	406	255.6	25.6	:	:	147.7	13.3	535.4	10.2	3.17	5.3	2.14	3.6	5.01	8.3
2003		621.5	11.8	257.2	414	270.1	26.5	:	:	153.2	13.9	539.2	10.2	3.31	5.3	2.25	3.6	5.35	8.6
2004		639.7	12.1	269.7	422	273.1	26.2	:	:	153.0	14.0	514.3	9.7	3.27	5.1	2.24	3.5	5.41	8.4
2005		645.8	12.1	276.5	428	247.8	23.3	1.86[10]	5.8[10]	141.1	12.9	513.0	9.6	3.25	5.0	2.22	3.4	5.17	8.0
2006		669.6	12.5	291.4	435	239.5	22.0	14.94	1.4	132.2	12.1	502.6	9.4	3.37	5.0	2.35	3.5	5.36	8.0
2007		690.0	12.8	305.6	443	235.4	21.2	7.93	0.7	128.2	11.8	504.1	9.3	3.35	4.8	2.28	3.3	5.37	7.7
2008		708.7	13.0	320.8	453	233.0[P]	20.7[P]	6.56	0.6	121.8	11.2	509.1	9.3	3.37	4.8	2.30	3.2	5.38	7.6
2009		706.2	12.9	326.2	462	..	..	5.69	0.5[P]	..	..	491.3	9.0	3.31	4.7	2.25	3.2	5.40	7.6
2007	March	164.0	12.3	72.5	442	27.0	9.9	1.55	0.6	34.6	12.9	139.3	10.4	0.80	4.9	0.56	3.4	1.31	7.9
	June	169.5	12.6	73.5	434	66.0	23.9	2.16	0.8	33.0	12.2	121.0	9.0	0.88	5.2	0.60	3.5	1.36	8.0
	Sept	181.4	13.3	80.8	445	101.3	36.3	2.68	1.0	33.0	12.0	114.0	8.4	0.84	4.6	0.57	3.1	1.35	7.4
	Dec	175.0	12.8	78.7	450	41.1	14.7	1.54	0.6	27.6	10.1	129.7	9.5	0.83	4.7	0.56	3.2	1.35	7.7
2008	March	173.8	12.8	78.6	452	27.5[P]	9.8[P]	1.13	0.4	31.9	11.9	136.4	10.1	0.86	4.9	0.60	3.4	1.38	7.9
	June	177.0	13.1	79.4	449	63.6[P]	22.7[P]	1.79	0.6	30.6	11.4	123.1	9.1	0.79	4.5	0.53	3.0	1.33	7.4
	Sept	182.4	13.3	83.1	455	99.1[P]	34.9[P]	2.24	0.8	30.4	11.2	114.3	8.4	0.87	4.8	0.60	3.3	1.32	7.2
	Dec	175.5	12.8	79.8	455	42.9[P]	15.1[P]	1.39	0.5	28.8	10.6	135.3	9.9	0.85	4.8	0.57	3.3	1.36	7.7
2009	March	169.0	12.5	77.8	461	26.6[P]	9.6[P]	0.91	0.3[P]	28.4[P]	10.6[P]	138.9	10.3	0.83	4.9	0.54	3.2	1.33	7.8
	June	175.1	12.8	79.4	454	64.2[P]	22.8[P]	1.49	0.5[P]	27.2[P]	10.1[P]	115.7	8.5	0.85	4.9	0.56	3.2	1.34	7.6
	Sept	181.3	13.1	84.4	466	94.6[P]	33.3[P]	2.06	0.7[P]	28.8[P]	10.5[P]	110.7	8.0	0.80	4.4	0.57	3.1	1.38	7.6
	Dec	180.9	13.1	84.5	467	..	..	1.23	0.4[P]	..	..	126.1	9.1	0.84	4.6	0.58	3.2	1.35	7.4
2010	March	174.6[P]	12.8[P]	81.9[P]	469[P]	..	..	0.88[P]	0.3[P]	..	..	134.5[P]	9.9[P]	0.80[P]	4.6[P]	0.56[P]	3.2[P]	1.31[P]	7.5[P]
	June	176.0[P]	12.8[P]	81.4[P]	462[P]	..	..	1.51[P]	0.5[P]	..	..	117.3[P]	8.5[P]	0.80[P]	4.5[P]	0.55[P]	3.1[P]	1.31[P]	7.4[P]

Notes: Death figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993 to 2005. Death figures for 2006, 2007, 2008, 2009 and provisional death figures for 2010 relate to registrations.

Infant, neonatal and perinatal mortality rates for Northern Ireland take account of the non-resident livebirths.

Birth and death figures for England and also for Wales each exclude events for persons usually resident outside England and Wales. These events are, however, included in the totals for England and Wales combined, and for the United Kingdom.

All infant, neonatal and perinatal mortality data has been revised to registration data.

From 1981 births to non-resident mothers in Northern Ireland are excluded from the figures for Northern Ireland, and for the United Kingdom.

Figures for divorces back to 2003 for England and Wales differ slightly to those previously published due to duplicate records being identified and removed from the datasets.

The birth and death rates for 2009 are based on mid-2009 population estimates.

The birth and death rates for 2010 are based on 2008-based population projections for 2010.

The birth rates for all live births and the death rates for 2002-2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were

Marriage, civil partnership and divorce rates for 2009 and 2010 are based on 2008 marital status estimates.

The rates for Scotland have taken into account the revised marital status estimates for Scotland from 2002 to 2007.

Marital status estimates/rates are not available for Northern Ireland/UK.

1 Per 1,000 population of all ages.
2 Per 1,000 live births.
3 Persons marrying per 1,000 unmarried population aged 16 and over.
4 Persons forming a civil partnership per 1,000 unmarried population aged 16 and over.
5 Persons divorcing per 1,000 married population.
6 Deaths under 1 year.
7 Deaths under 4 weeks.
8 Stillbirths and deaths under 1 week.
9 Per 1,000 live births and stillbirths.
10 The Civil Partnership Act 2004 came into force on 5 December 2005 in the UK – see Notes to tables.
P Provisional.

Source: Office for National Statistics, General Register. Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 2.1 continued — Vital statistics summary

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate[3]	Number	Rate[4]	Number	Rate[5]	Number	Rate[1]	Number	Rate[2]	Number	Rate[2]	Number	Rate[9]
England																			
1976		550.4	11.8	50.8	92	339.0	..	:	:	..	..	560.3	12.0	7.83	14.2	5.32	9.7	9.81	17.6
1981		598.2	12.8	76.9	129	332.2	..	:	:	..	..	541.0	11.6	6.50	10.9	3.93	6.6	7.04	11.7
1986		623.6	13.2	133.5	214	328.4	..	:	:	146.0	..	544.5	11.6	5.92	9.5	3.27	5.2	5.98	9.5
1991		660.8	13.8	198.9	301	290.1	..	:	:	150.1	..	534.0	11.2	4.86	7.3	2.87	4.3	5.33	8.0
1996		614.2	12.7	218.2	355	264.2	..	:	:	148.7	..	524.0	10.8	3.74	6.1	2.53	4.1	5.36	8.7
2001		563.7	11.4	223.3	396	236.2	..	:	:	136.4	..	496.1	10.0	3.06	5.4	2.03	3.6	4.51	8.0
2002		565.7	11.4	227.0	401	242.1	..	:	:	140.2	..	500.8	10.1	3.00	5.3	2.03	3.6	4.76	8.4
2003		589.9	11.8	241.4	409	255.6	..	:	:	145.5	..	504.1	10.1	3.15	5.3	2.14	3.6	5.08	8.6
2004		607.2	12.1	253.1	417	258.2	..	:	:	145.1	..	480.7	9.6	3.07	5.1	2.12	3.5	5.12	8.4
2005		613.0	12.1	259.4	423	233.8	..	1.79[10]	..	134.2	..	479.7	9.5	3.08	5.0	2.11	3.4	4.91	8.0
2006		635.7	12.5	273.5	430	226.0	..	14.38	..	125.3	..	470.3	9.3	3.19	5.0	2.24	3.5	5.11	8.0
2007		655.4	12.8	287.0	438	222.5	..	7.64	..	121.6	..	470.7	9.2	3.13	4.8	2.15	3.3	5.10	7.7
2008		672.8	13.1	300.9	447	220.1[P]	..	6.28	..	115.5	..	475.8	9.2	3.18	4.7	2.18	3.2	5.11	7.6
2009		671.1	13.0	306.3	457	..	..	5.44	..	..	..	459.2	8.9	3.11	4.6	2.13	3.2	5.11	7.6
2007	March	155.9	12.4	68.1	437	25.6	..	1.49	..	32.7	..	130.3	10.3	0.74	4.7	0.52	3.3	1.23	7.8
	June	161.0	12.6	69.0	429	62.4	..	2.06	..	31.3	..	112.9	8.9	0.84	5.2	0.57	3.5	1.30	8.0
	Sept	172.2	13.4	75.9	441	95.6	..	2.60	..	31.3	..	106.4	8.3	0.79	4.6	0.54	3.1	1.29	7.5
	Dec	166.3	12.9	74.0	445	38.9	..	1.48	..	26.2	..	121.2	9.4	0.76	4.6	0.53	3.2	1.28	7.6
2008	March	165.0	12.9	73.7	447	25.9[P]	..	1.08	..	30.3	..	127.6	10.0	0.82	4.9	0.57	3.4	1.30	7.9
	June	167.9	13.1	74.4	443	60.0[P]	..	1.72	..	29.1	..	115.1	9.0	0.74	4.4	0.50	3.0	1.26	7.5
	Sept	173.2	13.4	77.9	450	93.5[P]	..	2.14	..	28.8	..	106.7	8.2	0.82	4.7	0.57	3.3	1.25	7.2
	Dec	166.7	12.9	74.9	449	40.6[P]	..	1.33	..	27.3	..	126.4	9.8	0.81	4.8	0.54	3.3	1.30	7.7
2009	March	160.5	12.6	73.1	455	25.2[P]	..	0.88	..	26.8[P]	..	129.7	10.2	0.79	4.9	0.52	3.3	1.27	7.9
	June	166.4	12.9	74.6	448	60.7[P]	..	1.41	..	25.6[P]	..	108.2	8.4	0.80	4.8	0.53	3.2	1.27	7.6
	Sept	172.2	13.2	79.3	460	89.3[P]	..	1.97	..	27.0[P]	..	103.5	7.9	0.74	4.3	0.53	3.1	1.30	7.5
	Dec	171.9	13.2	79.4	462	..	..	1.18	..	..	..	117.8	9.0	0.78	4.5	0.54	3.1	1.27	7.3
2010	March	165.8[P]	12.9[P]	76.8[P]	463[P]	..	..	0.84[P]	..	..	..	125.8[P]	9.8[P]	0.76[P]	4.6[P]	0.53[P]	3.2[P]	1.24[P]	7.4[P]
	June	167.4[P]	12.9[P]	76.5[P]	457[P]	..	..	1.45[P]	..	..	..	109.7[P]	8.4[P]	0.75[P]	4.5[P]	0.53[P]	3.1[P]	1.25[P]	7.4[P]
Wales																			
1976		33.4	11.9	2.9	86	19.5	..	:	:	..	..	36.3	13.0	0.46	13.7	0.32	9.6	0.64	19.0
1981		35.8	12.7	4.0	112	19.8	..	:	:	..	..	35.0	12.4	0.45	12.6	0.29	8.1	0.51	14.1
1986		37.0	13.2	7.8	211	19.5	..	:	:	7.8	..	34.7	12.3	0.35	9.5	0.21	5.6	0.38	10.3
1991		38.1	13.3	12.3	323	16.6	..	:	:	8.4	..	34.1	11.9	0.25	6.6	0.16	4.1	0.30	7.9
1996		34.9	12.1	14.4	412	14.8	..	:	:	8.4	..	34.6	12.0	0.20	5.6	0.13	3.6	0.26	7.5
2001		30.6	10.5	14.8	483	13.0	..	:	:	7.4	..	33.0	11.3	0.17	5.5	0.11	3.4	0.23	7.5
2002		30.2	10.4	15.0	497	13.5	..	:	:	7.6	..	33.3	11.4	0.14	4.7	0.10	3.1	0.24	7.7
2003		31.4	10.7	15.8	503	14.5	..	:	:	7.7	..	33.8	11.5	0.13	4.1	0.09	3.0	0.24	7.5
2004		32.3	11.0	16.6	513	14.9	..	:	:	7.9	..	32.3	11.0	0.17	5.1	0.11	3.3	0.26	8.1
2005		32.6	11.0	17.1	524	14.0	..	0.07[10]	..	7.2	..	32.2	10.9	0.14	4.3	0.09	2.9	0.24	7.4
2006		33.6	11.4	17.8	530	13.5	..	0.56	..	7.0	..	31.1	10.5	0.14	4.1	0.09	2.8	0.23	6.9
2007		34.4	11.6	18.5	538	12.9	..	0.29	..	6.7	..	32.1	10.8	0.18	5.3	0.12	3.4	0.25	7.3
2008		35.7	11.9	19.8	556	12.9[P]	..	0.28	..	6.3	..	32.1	10.7	0.15	4.1	0.11	3.0	0.24	6.7
2009		34.9	11.6	19.8	566	..	..	0.24	..	..	..	31.0	10.3	0.17	4.8	0.11	3.1	0.26	7.4
2007	March	8.1	11.0	4.3	536	1.3	..	0.06	..	1.8	..	8.8	11.9	0.05	6.3	0.03	3.7	0.07	9.0
	June	8.5	11.5	4.5	530	3.6	..	0.10	..	1.8	..	7.9	10.6	0.04	4.5	0.02	2.8	0.06	6.8
	Sept	9.1	12.2	4.9	541	5.7	..	0.08	..	1.7	..	7.3	9.7	0.04	4.4	0.03	2.8	0.05	5.7
	Dec	8.7	11.6	4.8	547	2.2	..	0.06	..	1.4	..	8.3	11.0	0.05	6.1	0.04	4.1	0.07	7.9
2008	March	8.7	11.8	4.8	552	1.6[P]	..	0.06	..	1.6	..	8.6	11.5	0.04	4.1	0.03	3.0	0.06	7.3
	June	9.0	12.1	5.0	555	3.5[P]	..	0.07	..	1.5	..	7.7	10.4	0.04	4.2	0.03	3.2	0.06	6.4
	Sept	9.2	12.2	5.1	556	5.5[P]	..	0.10	..	1.6	..	7.3	9.7	0.04	3.8	0.03	2.9	0.06	6.3
	Dec	8.8	11.6	4.9	561	2.3[P]	..	0.06	..	1.5	..	8.5	11.3	0.04	4.3	0.03	3.0	0.06	6.9
2009	March	8.4	11.4	4.7	559	1.4[P]	..	0.03	..	1.6[P]	..	8.9	12.0	0.03	3.1	0.02	2.0	0.05	5.3
	June	8.6	11.5	4.8	561	3.5[P]	..	0.08	..	1.6[P]	..	7.3	9.7	0.04	4.5	0.03	3.0	0.07	7.5
	Sept	8.9	11.8	5.1	571	5.3[P]	..	0.09	..	1.8[P]	..	6.9	9.2	0.05	5.5	0.03	3.6	0.08	8.6
	Dec	8.9	11.8	5.1	572	..	..	0.05	..	..	..	7.9	10.5	0.05	5.8	0.03	3.6	0.07	8.1
2010	March	8.8[P]	11.8[P]	5.1[P]	579[P]	..	..	0.04[P]	..	..	..	8.5[P]	11.5[P]	0.04[P]	4.6[P]	0.03[P]	3.2[P]	0.07[P]	7.6[P]
	June	8.6[P]	11.4[P]	4.9[P]	571[P]	..	..	0.06[P]	..	..	..	7.4[P]	9.8[P]	0.03[P]	3.6[P]	0.02[P]	2.6[P]	0.05[P]	6.0[P]
Scotland																			
1976		64.9	12.5	6.0	93	37.5	53.8	:	:	8.1	6.5	65.3	12.5	0.96	14.8	0.67	10.3	1.20	18.3
1981		69.1	13.4	8.5	122	36.2	47.5	:	:	9.9	8.0	63.8	12.3	0.78	11.3	0.47	6.9	0.81	11.6
1986		65.8	12.9	13.6	206	35.8	42.9	:	:	12.8	10.7	63.5	12.4	0.58	8.8	0.34	5.2	0.67	10.2
1991		67.0	13.2	19.5	291	33.8	39.0	:	:	12.4	10.6	61.0	12.0	0.47	7.1	0.29	4.6	0.58	8.6
1996		59.3	11.6	21.4	360	30.2	33.2	:	:	12.3	10.9	60.7	11.9	0.37	6.2	0.23	3.9	0.55	9.2
2001		52.5	10.4	22.8	433	29.6	31.0	:	:	10.7	9.7	57.4	11.3	0.29	5.5	0.20	3.8	0.45	8.5
2002		51.3	10.1	22.5	440	29.8	30.8	:	:	10.9	10.0	58.1	11.5	0.27	5.3	0.16	3.2	0.39	7.6
2003		52.4	10.4	23.9	455	30.8	31.3	:	:	10.9	10.2	58.5	11.6	0.27	5.1	0.18	3.4	0.42	8.0
2004		54.0	10.6	25.2	467	32.2	32.1	:	:	11.3	10.5	56.2	11.1	0.27	4.9	0.17	3.1	0.44	8.1
2005		54.4	10.7	25.6	471	30.9	30.3	0.08[10]	2.5[10]	10.9	10.3	55.7	10.9	0.28	5.2	0.19	3.5	0.42	7.7
2006		55.7	10.9	26.6	477	29.9	28.7	1.05	1.0	13.1	12.3	55.1	10.8	0.25	4.5	0.17	3.1	0.42	7.4
2007		57.8	11.2	28.4	491	29.9	28.1	0.69	0.6	12.8	12.2	56.0	10.9	0.27	4.7	0.19	3.2	0.45	7.8
2008		60.0	11.6	30.1	501	28.9	26.6	0.53	0.5	11.5	11.0	55.7	10.8	0.25	4.2	0.17	2.8	0.45	7.4
2009		59.0	11.4	29.7	503	27.5	25.3	0.50	0.5[P]	10.4	10.0	53.9	10.4	0.24	4.0	0.17	2.8	0.44	7.4

See notes on first page of table.

Table 2.1 continued **Vital statistics summary**

Constituent countries of the United Kingdom

Numbers (thousands) and rates

Year and quarter		All live births		Live births outside marriage		Marriages		Civil Partnerships		Divorces		Deaths		Infant mortality[6]		Neonatal mortality[7]		Perinatal mortality[8]	
		Number	Rate[1]	Number	Rate[2]	Number	Rate[1]	Number	Rate[1]	Number	Rate[5]	Number	Rate[1]	Number	Rate[4]	Number	Rate[2]	Number	Rate[9]
2007	March	14.2	11.2	7.1	501	3.3	12.7	0.11	0.4	3.3	12.8	15.8	12.5	0.07	4.9	0.05	3.6	0.12	8.1
	June	14.3	11.1	6.9	482	8.1	30.7	0.18	0.7	3.3	12.7	13.4	10.4	0.08	5.3	0.05	3.4	0.12	8.6
	Sept	14.9	11.5	7.2	485	12.6	47.1	0.25	0.9	3.0	11.4	12.6	9.7	0.07	4.6	0.05	3.0	0.11	7.1
	Dec	14.4	11.1	7.1	497	5.8	21.6	0.15	0.6	3.1	11.8	14.2	10.9	0.06	3.9	0.04	2.9	0.11	7.5
2008	March	15.1	11.9	7.7	510	3.4	12.7	0.10	0.4	2.8	10.7	15.1	11.7	0.06	4.0	0.04	2.8	0.11	7.0
	June	14.9	11.5	7.3	488	7.9	29.2	0.11	0.4	3.0	11.8	13.5	10.5	0.06	4.0	0.04	2.5	0.11	7.5
	Sept	15.5	11.9	7.7	498	11.9	43.5	0.20	0.7	2.8	10.9	12.6	9.7	0.07	4.8	0.05	3.4	0.11	6.9
	Dec	14.5	11.2	7.4	507	5.7	20.7	0.12	0.4	2.8	10.8	14.5	11.2	0.06	4.1	0.04	2.4	0.12	8.2
2009	March	14.5	11.3	7.4	512	3.2	11.9[P]	0.05	0.2[P]	2.5	9.9[P]	14.8	11.6	0.06	4.3	0.04	2.9	0.10	6.7
	June	14.9	11.5	7.4	495	7.9	29.0[P]	0.15	0.5[P]	2.8	10.6[P]	12.8	9.9	0.06	4.0	0.05	3.2	0.13	8.9
	Sept	15.3	11.7	7.6	499	11.3	41.0[P]	0.19	0.7[P]	2.6	10.0[P]	12.4	9.5	0.06	3.9	0.04	2.6	0.10	6.5
	Dec	14.4	11.0	7.3	507	5.2	19.0[P]	0.11	0.4[P]	2.5	9.4[P]	13.8	10.5	0.05	3.7	0.04	2.5	0.11	7.4
2010	March	14.7[P]	11.5[P]	7.5[P]	512[P]	3.1[P]	11.7[P]	0.06[P]	0.2[P]	..	..	14.7[P]	11.4[P]	0.06[P]	4.4[P]	0.05[P]	3.1[P]	0.12[P]	7.8[P]
	June	14.7[P]	11.3[P]	7.4[P]	500[P]	8.3[P]	30.6[P]	0.13[P]	0.5[P]	..	..	12.8[P]	9.9[P]	0.05[P]	3.4[P]	0.03[P]	2.3[P]	0.10[P]	6.4[P]
Northern Ireland																			
1976		26.4	17.3	1.3	50	9.9	..	:	:	0.6	..	17.0	11.2	0.48	18.3	0.35	13.3	0.59	22.3
1981		27.2	17.6	1.9	70	9.6	45.4	:	:	1.4	4.2	16.3	10.6	0.36	13.2	0.23	8.3	0.42	15.3
1986		28.0	17.8	3.6	128	10.2	..	:	:	1.5	..	16.1	10.3	0.36	13.2	0.23	8.3	0.42	15.3
1991		26.0	16.2	5.3	203	9.2	..	:	:	2.3	..	15.1	9.4	0.19	7.4	0.12	4.6	0.22	8.4
1996		24.4	14.7	6.3	260	8.3	..	:	:	2.3	..	15.2	9.2	0.14	5.8	0.09	3.7	0.23	9.4
2001		22.0	13.0	7.1	325	7.3	..	:	:	2.4	..	14.5	8.6	0.13	6.0	0.10	4.4	0.19	8.4
2002		21.4	12.6	7.2	335	7.6	..	:	:	2.2	..	14.6	8.6	0.10	4.6	0.07	3.4	0.19	8.7
2003		21.6	12.7	7.4	344	7.8	..	:	:	2.3	..	14.5	8.5	0.12	5.2	0.09	3.9	0.18	8.0
2004		22.3	13.0	7.7	345	8.3	..	:	:	2.5	..	14.4	8.4	0.12	5.3	0.08	3.6	0.19	8.0
2005		22.3	12.9	8.1	363	8.1	..	0.01[10]	..	2.4	..	14.2	8.2	0.14	6.1	0.11	4.9	0.19	8.1
2006		23.3	13.4	8.8	380	8.3	..	0.12	..	2.6	..	14.5	8.3	0.12	5.1	0.09	3.8	0.17	6.9
2007		24.5	13.9	9.3	379	8.7	..	0.11	..	2.9	..	14.6	8.3	0.12	4.9	0.08	3.2	0.17	6.9
2008		25.6	14.4	10.0	389	8.5	..	0.09	..	2.8	..	14.9	8.4	0.12	4.7	0.10	3.6	0.19	7.4
2009		24.9[P]	13.9[P]	9.9[P]	398[P]	7.9[P]	..	0.10[P]	..	2.2[P]	..	14.4[P]	8.1[P]	0.13[P]	5.1[P]	0.10[P]	3.8[P]	0.20[P]	7.8[P]
2007	March	6.1	14.0	2.4	383	1.0	..	0.02	..	0.9	..	4.2	9.7	0.04	6.7	0.03	4.6	0.05	7.6
	June	6.0	13.6	2.2	365	2.4	..	0.03	..	0.7	..	3.6	8.2	0.03	5.1	0.02	2.9	0.04	6.7
	Sept	6.5	14.7	2.5	386	3.8	..	0.04	..	0.7	..	3.3	7.3	0.03	4.6	0.02	3.2	0.05	7.0
	Dec	5.9	13.3	2.2	380	1.6	..	0.02	..	0.6	..	3.6	8.1	0.02	3.3	0.01	2.2	0.04	6.5
2008	March	6.5	14.7	2.6	396	1.1	..	0.02	..	0.8	..	4.1	9.4	0.03	4.6	0.03	3.9	0.05	7.3
	June	6.3	14.3	2.4	384	2.2	..	0.02	..	0.7	..	3.6	8.2	0.03	4.6	0.02	3.5	0.04	6.4
	Sept	6.5	14.5	2.5	386	3.6	..	0.02	..	0.6	..	3.4	7.7	0.03	3.8	0.02	2.7	0.05	7.5
	Dec	6.3	14.2	2.5	389	1.6	..	0.02	..	0.7	..	3.7	8.4	0.04	5.7	0.03	4.3	0.05	8.2
2009	March	6.3[P]	14.1[P]	2.6[P]	409[P]	0.9[P]	..	0.01[P]	..	0.6[P]	..	4.2[P]	9.5[P]	0.04[P]	6.5[P]	0.03[P]	4.8[P]	0.07[P]	10.0[P]
	June	6.3[P]	14.1[P]	2.4[P]	389[P]	2.3[P]	..	0.02[P]	..	0.6[P]	..	3.4[P]	7.7[P]	0.03[P]	4.8[P]	0.02[P]	3.4[P]	0.04[P]	6.0[P]
	Sept	6.3[P]	14.2[P]	2.5[P]	397[P]	3.2[P]	..	0.03[P]	..	0.5[P]	..	3.2[P]	7.2[P]	0.04[P]	5.6[P]	0.03[P]	4.5[P]	0.05[P]	8.0[P]
	Dec	6.0[P]	13.3[P]	2.4[P]	395[P]	1.5[P]	..	0.03[P]	..	0.5[P]	..	3.6[P]	8.0[P]	0.02[P]	3.5[P]	0.02[P]	2.5[P]	0.04[P]	7.0[P]
2010	March	6.4[P]	14.4[P]	2.6[P]	407[P]	0.9[P]	..	0.02[P]	..	..	..	4.1[P]	9.3[P]	0.04[P]	6.1[P]	0.03[P]	4.5[P]	0.05[P]	8.2[P]
	June	6.3[P]	14.0[P]	2.5[P]	399[P]	2.4[P]	..	0.03[P]	..	..	..	3.3[P]	7.4[P]	0.04[P]	5.6[P]	0.03[P]	4.7[P]	0.05[P]	7.0[P]

See notes on first page of table.

Table 2.2 Key demographic and health indicators

Constituent countries of the United Kingdom

Numbers (thousands), rates, percentages, mean age

Year	Population	Live births	Deaths	Dependency ratio		Live births				Age-standardised mortality rate[6]	Period expectation of life (in years) at birth[7]		Infant mortality rate[8]
				Children[1]	Elderly[2]	TFR[3]	Standardised mean age of mother at birth (years)[4]	Unstandardised mean age of mother at birth (years)[5]	Outside marriage as percentage of total live births		Males	Females	
United Kingdom													
1976	56,216.1	675.5	680.8	42.1	29.5	1.74	26.7	26.4	9.0	10,486	..	..	14.5
1981	56,357.5	730.7	658.0	37.1	29.7	1.82	27.0	26.8	12.5	9,506	70.8	76.8	11.2
1986	56,683.8	754.8	660.7	33.5	29.7	1.78	27.4	27.0	20.4	8,914	71.9	77.7	9.5
1991	57,438.7	792.3	646.2	33.2	30.0	1.82	27.7	27.7	29.8	8,168	73.2	78.7	7.4
1996	58,164.4	733.2	636.0	33.9	30.0	1.73	28.2	28.6	35.5	7,584	74.2	79.4	6.1
2001	59,113.5	669.1	602.3	32.6	29.8	1.63	28.6	29.2	40.1	6,807	75.6	80.4	5.5
2002	59,318.8	668.8	606.2	32.2	29.8	1.64	28.7	29.3	40.6	6,791	75.9	80.5	5.3
2003	59,552.2	695.6	612.0	31.8	29.9	1.71	28.8	29.4	41.5	6,773	76.2	80.7	5.3
2004	59,841.9	716.0	583.1	31.4	30.0	1.77	29.0	29.4	42.3	6,421	76.5	80.9	5.1
2005	60,235.5	722.5	582.7	31.0	30.0	1.78	29.1	29.5	42.9	6,279	76.9	81.3	5.1
2006	60,584.3	748.6	572.2	30.6	30.1	1.84	29.2	29.5	43.7	6,066	77.2	81.5	5.0
2007	60,985.7	772.2	574.7	30.4	30.5	1.90	29.3	29.5	44.4	5,965	77.4	81.6	4.8
2008	61,398.2	794.4	579.7	30.2	31.0	1.96	29.3	29.5	45.3	5,907	77.7	81.9	4.7
2009P	61,792.0	790.2	559.6	30.2	31.4	1.94	29.4	29.5	46.3	5,630	..	..	4.6
England													
1976	46,659.9	550.4	560.3	41.4	29.7	1.70	26.5	26.4	9.2	10,271	..	..	14.2
1981	46,820.8	598.2	541.0	36.4	29.9	1.79	27.0	26.8	12.9	9,298	71.1	77.0	10.9
1986	47,187.6	623.6	544.5	33.1	29.8	1.76	27.4	27.0	21.4	8,725	72.2	77.9	9.5
1991	47,875.0	660.8	534.0	32.9	30.0	1.81	27.7	27.7	30.1	8,017	73.4	78.9	7.3
1996	48,519.1	614.2	524.0	33.7	30.0	1.73	28.2	28.7	35.5	7,414	74.5	79.6	6.1
2001	49,449.7	563.7	496.1	32.5	29.7	1.63	28.6	29.3	39.6	6,650	75.9	80.6	5.4
2002	49,649.1	565.7	499.1	32.1	29.7	1.65	28.7	29.4	40.1	6,631	76.1	80.7	5.3
2003	49,863.3	589.9	503.4	31.8	29.8	1.73	28.9	29.4	40.9	6,617	76.5	80.9	5.3
2004	50,109.7	607.2	479.2	31.4	29.8	1.78	29.0	29.5	41.7	6,265	76.8	81.1	5.1
2005	50,466.2	613.0	479.4	30.9	29.9	1.79	29.1	29.5	42.3	6,131	77.2	81.5	5.0
2006	50,763.9	635.7	470.3	30.6	29.9	1.86	29.2	29.5	43.0	5,914	77.5	81.7	5.0
2007	51,106.2	655.4	470.7	30.4	30.3	1.91	29.3	29.6	43.8	5,791	77.7	81.9	4.8
2008	51,464.6	672.8	475.8	30.3	30.8	1.96	29.4	29.5	44.7	5,746	78.0	82.1	4.7
2009	51,809.7	671.1	459.2	30.2	31.2	1.96	29.4	29.5	45.6	5,478	..	..	4.6
Wales													
1976	2,799.3	33.4	36.3	42.0	30.9	1.78	26.2	26.0	8.6	10,858	..	..	13.7
1981	2,813.5	35.8	35.0	37.6	31.6	1.87	26.7	26.6	11.2	9,846	70.4	76.4	12.6
1986	2,810.9	37.0	34.7	34.3	32.5	1.86	26.9	26.5	21.1	9,043	71.6	77.5	9.5
1991	2,873.0	38.1	34.1	34.4	33.5	1.88	27.1	27.0	32.3	8,149	73.1	78.8	6.6
1996	2,891.3	34.9	34.6	34.9	33.7	1.81	27.5	27.8	41.2	7,758	73.8	79.1	5.6
2001	2,910.2	30.6	33.0	33.7	33.6	1.66	27.8	28.3	48.3	7,017	75.3	80.0	5.5
2002	2,918.2	30.2	33.2	33.3	33.7	1.65	28.0	28.4	49.7	6,997	75.5	80.1	4.7
2003	2,928.8	31.4	33.7	32.8	33.8	1.73	28.1	28.5	50.3	7,033	75.8	80.3	4.1
2004	2,943.5	32.3	32.1	32.3	33.9	1.79	28.2	28.5	51.3	6,645	76.1	80.6	5.1
2005	2,950.1	32.6	32.1	31.8	34.1	1.81	28.4	28.5	52.4	6,481	76.6	80.9	4.3
2006	2,961.9	33.6	31.1	31.4	34.3	1.86	28.5	28.5	53.0	6,199	76.7	81.1	4.1
2007	2,976.1	34.4	32.1	31.0	34.9	1.91	28.6	28.6	53.8	6,308	76.9	81.2	5.3
2008	2,990.1	35.7	32.1	30.7	35.5	1.97	28.7	28.5	55.6	6,147	77.1	81.4	4.1
2009	2,999.3	34.9	31.0	30.6	36.1	1.93	28.7	28.5	56.6	5,888	..	..	4.8

Notes: Death figures for England and Wales represent the number of deaths registered in each year up to 1992, and the number of deaths occurring in each year from 1993 to 2005.
Death figures for 2006 onwards relate to registrations.
Birth and death figures for England and also for Wales each exclude events for persons usually resident outside England and Wales (apart from life expectancy figures – where those occurring in England and Wales are assigned to England). These events are, however, included in the total for the United Kingdom.
From 1981 births to non-resident mothers in Northern Ireland are excluded from the figures for Northern Ireland, and for the United Kingdom.
Birth and death rates for 2009 have been calculated using mid-2009 population estimates.
The birth rates, death rates and the standardised mean age of mother at birth for 2002–2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010. Consequently, some figures may differ from those published previously.
Infant mortality rates for Northern Ireland take account of the non-resident live births.

1 Percentage of children under 16 to working-age population (males 16–64 and females 16–59).
2 Percentage of males 65 and over and females 60 and over to working-age population (males 16–64 and females 16–59).
3 TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPFR (total period fertility rate).
4 Standardised to take account of the age structure of the population.
5 Unstandardised and therefore takes no account of the age structure of the population.
6 Per million population. The age-standardised mortality rate makes allowances for changes in the age structure of the population. See Notes to tables.
7 All countries: figures for all years based on registered deaths. A minor methodological change was introduced for the 2006 figures to ensure consistency with population estimates of the very elderly for England and Wales. The effect on calculated life expectancies is marginal.
8 Deaths at age under one year per 1,000 live births. All infant mortality data has now been revised to registration data.
P Provisional.

Sources: Office for National Statistics, General Register Office for Scotland, Northern Ireland Statistics and Research Agency.

Table 2.2 continued **Key demographic and health indicators**

Constituent countries of the United Kingdom

Numbers (thousands), rates, percentages, mean age

				Dependency ratio		Live births					Period expectation of life (in years) at birth[7]		
Year	Population	Live births	Deaths	Children[1]	Elderly[2]	TFR[3]	Standardised mean age of mother at birth (years)[4]	Unstandardised mean age of mother at birth (years)[5]	Outside marriage as percentage of total live births	Age-standardised mortality rate[6]	Males	Females	Infant mortality rate[8]
Scotland													
1976	5,233.4	64.9	65.3	44.7	28.4	1.79	26.4	26.0	9.3	11,675	..	..	14.8
1981	5,180.2	69.1	63.8	38.2	28.4	1.84	26.8	26.3	12.2	10,849	69.1	75.3	11.3
1986	5,111.8	65.8	63.5	33.6	28.1	1.67	27.1	26.6	20.6	10,120	70.2	76.2	8.8
1991	5,083.3	67.0	61.0	32.4	28.9	1.69	27.5	27.4	29.1	9,216	71.4	77.1	7.1
1996	5,092.2	59.3	60.7	32.3	29.2	1.56	28.0	28.5	36.0	8,791	72.2	77.9	6.2
2001	5,064.2	52.5	57.4	30.8	30.0	1.49	28.5	29.2	43.3	7,930	73.3	78.8	5.5
2002	5,054.8	51.3	58.1	30.3	30.2	1.48	28.6	29.2	44.0	7,955	73.5	78.9	5.3
2003	5,057.4	52.4	58.5	29.9	30.3	1.54	28.7	29.3	45.5	7,478	73.8	79.1	5.1
2004	5,078.4	54.0	56.2	29.5	30.5	1.60	28.9	29.4	46.7	7,536	74.2	79.3	4.9
2005	5,094.8	54.4	55.7	29.1	30.6	1.62	29.0	29.5	47.1	7,349	74.6	79.6	5.2
2006	5,116.9	55.7	55.1	28.7	30.6	1.67	29.1	29.5	47.7	7,162	74.8	79.7	4.5
2007	5,144.2	57.8	56.0	28.4	31.0	1.73	29.2	29.4	49.1	7,150	75.0	79.9	4.7
2008	5,168.5	60.0	55.7	28.2	31.4	1.80	29.3	29.4	50.1	7,006	75.3	80.1	4.2
2009	5,194.0	59.0	53.9	28.1	31.8	1.77	29.3	29.4	50.3	6,667	..	..	4.0
Northern Ireland													
1976	1,523.5	26.4	17.0	56.1	25.3	2.68	27.8	27.4	5.0	11,746	..	..	18.3
1981	1,543.0	27.2	16.3	50.6	25.3	2.59	28.1	27.5	7.0	10,567	69.2	75.5	13.2
1986	1,573.5	28.0	16.1	46.1	25.5	2.45	28.1	27.5	12.8	10,071	70.9	77.1	13.2
1991	1,607.3	26.0	15.1	44.1	26.1	2.16	28.3	28.0	20.3	8,303	72.6	78.4	7.4
1996	1,661.8	24.4	15.2	41.8	25.5	1.95	28.7	28.8	26.0	7,742	73.8	79.2	5.8
2001	1,689.3	22.0	14.5	38.6	25.5	1.80	29.1	29.4	32.5	6,976	75.2	80.1	6.0
2002	1,696.6	21.4	14.6	37.9	25.7	1.77	29.1	29.4	33.5	6,929	75.6	80.4	4.6
2003	1,702.6	21.6	14.5	37.2	25.9	1.81	29.2	29.5	34.4	6,742	75.8	80.6	5.2
2004	1,710.3	22.3	14.4	36.4	26.2	1.87	29.4	29.7	34.5	6,607	76.0	80.8	5.3
2005	1,724.4	22.3	14.2	35.8	26.3	1.87	29.5	29.7	36.3	6,415	76.1	81.0	6.1
2006	1,741.6	23.3	14.5	35.3	26.4	1.94	29.6	29.7	38.0	6,419	76.2	81.2	5.1
2007	1,759.1	24.5	14.6	34.9	26.6	2.02	29.8	29.8	37.9	6,319	76.3	81.2	4.9
2008	1,775.0	25.6	14.9	34.7	26.9	2.11	29.8	29.7	38.9	6,299	76.7	81.3	4.7
2009[p]	1,788.9	24.9	14.4	34.6	27.3	2.04	29.8	29.7	39.8	6,002	..	..	5.1

See notes on first page of table.

Table 3.1 Live births: age of mother

England and Wales

Numbers (thousands), rates, mean age and TFRs

Year and quarter	Age of mother at birth: All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	Mean age[1] (years)	Age of mother at birth: All ages	Under 20	20–24	25–29	30–34	35–39	40 and over	Mean age[2] (years)	TFR[3]
	Total live births (numbers)								Age-specific fertility rates[4]								
1961	811.3	59.8	249.8	248.5	152.3	77.5	23.3	27.6	89.2	37.3	172.6	176.9	103.1	48.1	15.0	27.4	2.77
1964(max)	876.0	76.7	276.1	270.7	153.5	75.4	23.6	27.2	92.9	42.5	181.6	187.3	107.7	49.8	13.7	27.3	2.93
1966	849.8	86.7	285.8	253.7	136.4	67.0	20.1	26.8	90.5	47.7	176.0	174.0	97.3	45.3	12.5	27.1	2.75
1971	783.2	82.6	285.7	247.2	109.6	45.2	12.7	26.2	83.5	50.6	152.9	153.2	77.1	32.8	8.7	26.6	2.37
1976	584.3	57.9	182.2	220.7	90.8	26.1	6.5	26.4	60.4	32.2	109.3	118.7	57.2	18.6	4.8	26.5	1.71
1977(min)	569.3	54.5	174.5	207.9	100.8	25.5	6.0	26.5	58.1	29.4	103.7	117.5	58.6	18.2	4.4	26.6	1.66
1981	634.5	56.6	194.5	215.8	126.6	34.2	6.9	26.8	61.3	28.1	105.3	129.1	68.6	21.7	4.9	27.0	1.79
1986	661.0	57.4	192.1	229.0	129.5	45.5	7.6	27.0	60.6	30.1	92.7	123.8	78.0	24.6	4.8	27.4	1.77
1991	699.2	52.4	173.4	248.7	161.3	53.6	9.8	27.7	63.6	33.0	89.3	119.4	86.7	32.1	5.3	27.7	1.82
1992	689.7	47.9	163.3	244.8	166.8	56.7	10.2	27.9	63.6	31.7	86.1	117.6	87.4	33.4	5.8	27.8	1.80
1993	673.5	45.1	152.0	236.0	171.1	58.8	10.5	28.1	62.7	30.9	82.5	114.4	87.4	34.1	6.2	27.9	1.76
1994	664.7	42.0	140.2	229.1	179.6	63.1	10.7	28.4	62.0	28.9	79.0	112.2	89.4	35.8	6.4	28.1	1.75
1995	648.1	41.9	130.7	217.4	181.2	65.5	11.3	28.5	60.5	28.5	76.4	108.4	88.3	36.3	6.8	28.2	1.72
1996	649.5	44.7	125.7	211.1	186.4	69.5	12.1	28.6	60.6	29.7	77.0	106.6	89.8	37.5	7.2	28.2	1.74
1997	643.1	46.4	118.6	202.8	187.5	74.9	12.9	28.8	60.0	30.2	76.0	104.3	89.8	39.4	7.6	28.3	1.73
1998	635.9	48.3	113.5	193.1	188.5	78.9	13.6	28.9	59.2	30.9	74.9	101.5	90.6	40.4	7.9	28.3	1.72
1999	621.9	48.4	110.7	181.9	185.3	81.3	14.3	29.0	57.8	30.9	73.0	98.3	89.6	40.6	8.1	28.4	1.70
2000	604.4	45.8	107.7	170.7	180.1	85.0	15.1	29.1	55.9	29.3	70.0	94.3	87.9	41.4	8.3	28.5	1.65
2001	594.6	44.2	108.8	159.9	178.9	86.5	16.3	29.2	54.7	28.0	69.0	91.7	88.0	41.5	8.8	28.6	1.63
2002	596.1	43.5	111.0	153.4	180.5	90.4	17.3	29.3	54.7	27.1	69.1	91.5	89.9	43.0	9.1	28.7	1.65
2003	621.5	44.2	116.6	156.9	187.2	97.4	19.1	29.4	56.8	26.9	71.3	96.0	95.0	46.4	9.8	28.8	1.73
2004	639.7	45.1	121.1	160.0	190.6	102.2	20.8	29.4	58.2	26.8	72.7	97.7	99.7	48.8	10.4	28.9	1.78
2005	645.8	44.8	122.1	164.3	188.2	104.1	22.2	29.5	58.3	26.3	71.5	97.9	100.8	50.3	10.8	29.1	1.79
2006	669.6	45.5	127.8	172.6	189.4	110.5	23.7	29.5	60.2	26.6	73.0	100.7	104.9	53.9	11.4	29.1	1.86
2007	690.0	44.8	130.8	182.6	191.1	115.4	25.4	29.5	62.0	26.0	73.3	103.8	110.2	56.9	12.0	29.3	1.91
2008	708.7	44.7	136.0	193.0	192.5	116.2	26.4	29.5	63.8	26.0	74.4	108.1	113.1	58.4	12.6	29.3	1.97
2009	706.2	43.2	136.0	194.1	191.6	114.3	27.0	29.5	63.7	25.3	73.9	107.2	113.1	59.0	12.9	29.4	1.96
2007 March	164.0	10.9	31.1	42.7	45.7	27.4	6.2	29.5	59.8	25.6	70.8	98.5	106.9	54.8	12.0	29.3	1.85
June	169.5	10.7	31.4	44.6	47.8	28.9	6.2	29.6	61.1	25.0	70.6	101.8	110.5	57.1	11.8	29.4	1.89
Sept	181.4	11.9	34.6	48.6	50.0	29.9	6.4	29.5	64.7	27.3	76.9	109.8	114.4	58.6	12.0	29.2	2.00
Dec	175.0	11.3	33.7	46.6	47.6	29.2	6.6	29.5	62.4	26.1	74.9	105.2	108.9	57.2	12.4	29.3	1.93
2008 March	173.8	11.1	33.5	46.7	47.2	28.8	6.4	29.5	62.9	26.0	73.9	105.2	111.5	58.2	12.4	29.3	1.94
June	177.0	11.0	33.5	48.3	48.4	29.2	6.6	29.5	64.0	25.8	73.7	108.9	114.3	59.1	12.6	29.4	1.97
Sept	182.4	11.4	35.2	50.3	49.3	29.5	6.7	29.4	65.3	26.5	76.6	112.1	115.2	59.0	12.8	29.3	2.01
Dec	175.5	11.1	33.8	47.7	47.6	28.7	6.7	29.5	62.8	25.8	73.6	106.2	111.4	57.4	12.6	29.3	1.94
2009 March	169.0	10.9	32.8	46.1	45.4	27.2	6.5	29.4	61.8	26.0	72.3	103.2	108.6	57.0	12.6	29.3	1.90
June	175.1	10.5	33.2	48.2	47.7	28.7	6.8	29.6	63.4	24.7	72.4	106.8	112.8	59.5	13.0	29.5	1.95
Sept	181.3	10.9	35.1	50.3	49.3	28.9	6.8	29.5	64.9	25.2	75.7	110.2	115.5	59.2	12.8	29.4	1.99
Dec	180.9	10.9	34.9	49.5	49.2	29.4	6.9	29.5	64.8	25.3	75.3	108.5	115.3	60.2	13.1	29.4	1.99
2010 March[P]	174.6	10.5	33.4	48.0	47.6	28.2	6.8	29.5	63.9	25.4	72.3	104.4	112.0	60.8	13.4	29.4	1.94
June[P]	176.0	9.8	33.3	48.4	49.5	28.4	6.6	29.6	63.7	23.4	71.1	104.1	115.1	60.6	12.9	29.5	1.94

Notes: The rates for women of all ages, under 20, and 40 and over are based upon the populations of women aged 15–44, 15–19, and 40–44 respectively.
Rates for 2009 are based on mid-2009 population estimates.
Rates for 2010 are based on 2008-based population projections for 2010.
Birth rates and the standardised mean age of mother for 2002–2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010. Consequently, some figures may differ slightly from those published previously.

1 Unstandardised and therefore takes no account of the age structure of the population.
2 Standardised to take account of the age structure of the population. This measure is more appropriate for use when analysing trends or making comparisons between different geographies.
3 TFR (total fertility rate) is the number of children that would be born to a woman if current patterns of fertility persisted throughout her childbearing life. It is sometimes called the TPFR (total period fertility rate).
4 Births per 1,000 women in the age-group; all quarterly age-specific fertility rates are adjusted for days in the quarter. They are not adjusted for seasonality.
P Provisional.

Source: Office for National Statistics.

Table 4.1 **Conceptions by age of woman at conception, 1990–2009**

England and Wales residents

Year and quarter		Age of woman at conception								
		All ages	Under 16	Under 18	Under 20	20–24	25–29	30–34	35–39	40 and over
		(a) numbers (thousands)								
1990		871.5	8.1	44.8	113.3	244.5	284.2	161.4	56.0	12.0
1991		853.7	7.5	40.1	101.6	233.3	281.5	167.5	57.6	12.1
1992		828.0	7.2	37.6	93.4	215.9	274.9	172.0	59.6	12.2
1993		819.0	7.3	35.8	87.2	203.6	271.7	181.0	63.0	12.6
1994		801.6	7.8	36.1	85.4	190.4	261.8	185.0	66.2	12.9
1995		790.3	8.1	37.9	86.6	181.1	250.3	190.3	68.7	13.2
1996		816.9	8.9	43.5	94.9	179.8	252.6	200.0	75.5	14.1
1997		800.4	8.3	43.4	96.0	167.3	242.6	200.9	78.9	14.7
1998		797.0	8.5	44.1	101.6	163.3	232.4	201.4	82.9	15.4
1999		774.0	7.9	42.0	98.8	157.6	218.5	197.1	86.0	16.0
2000		767.0	8.1	41.3	97.7	159.0	209.3	195.3	88.7	17.0
2001		763.7	7.9	41.0	96.0	161.6	199.3	196.7	92.2	17.8
2002		787.0	7.9	42.0	97.1	167.8	199.4	204.3	98.9	19.6
2003		806.8	8.0	42.2	98.6	175.3	199.8	209.0	103.1	20.9
2004		826.8	7.6	42.2	101.3	181.3	205.1	209.6	106.8	22.8
2005		841.8	7.9	42.3	102.3	185.5	211.3	209.2	110.0	23.6
2006		870.0	7.8	41.8	103.1	191.2	222.2	212.4	115.4	25.5
2007		895.9	8.2	43.0	106.3	198.7	234.8	211.5	118.0	26.5
2008		888.6	7.6	41.4	103.3	198.5	237.8	207.1	115.6	26.5
1996	March	206.3	2.3	10.9	24.2	47.3	64.0	49.2	18.3	3.4
	June	200.8	2.3	10.9	23.7	44.6	61.9	48.7	18.2	3.6
	Sept	202.6	2.1	10.5	22.6	43.1	63.2	50.8	19.2	3.6
	Dec	207.2	2.1	11.2	24.2	44.9	63.5	51.2	19.8	3.6
1997	March	194.1	2.0	10.6	23.2	41.6	59.4	47.7	18.6	3.6
	June	198.5	2.2	11.0	23.9	41.8	59.9	49.8	19.5	3.8
	Sept	199.2	2.0	10.4	23.3	40.4	60.7	51.2	19.9	3.6
	Dec	208.6	2.1	11.4	25.6	43.5	62.6	52.2	20.8	3.8
1998	March	196.5	2.1	11.2	25.3	41.1	57.7	48.9	19.9	3.6
	June	196.0	2.1	11.0	25.3	40.5	56.8	49.0	20.5	3.8
	Sept	200.8	2.1	10.7	24.7	40.0	59.1	51.9	21.1	3.9
	Dec	203.7	2.1	11.2	26.3	41.7	58.9	51.5	21.3	4.0
1999	March	191.5	1.9	10.4	24.9	39.6	54.3	48.4	20.6	3.8
	June	190.4	2.0	10.5	24.4	39.1	53.8	47.9	21.2	4.1
	Sept	194.0	2.0	10.4	24.1	38.4	54.7	50.7	22.1	4.1
	Dec	198.0	2.1	10.8	25.4	40.5	55.6	50.2	22.2	4.1
2000	March	193.1	2.0	10.5	25.1	40.4	53.2	48.3	21.9	4.2
	June	188.7	2.1	10.4	24.3	39.3	51.5	47.5	21.8	4.3
	Sept	190.0	2.1	10.0	23.5	38.4	52.0	49.7	22.2	4.2
	Dec	195.2	2.0	10.4	24.7	40.9	52.7	49.8	22.7	4.3
2001	March	189.2	1.9	10.2	24.3	40.4	50.0	47.8	22.3	4.4
	June	187.4	2.1	10.2	24.0	39.8	48.8	47.7	22.8	4.4
	Sept	189.3	1.9	10.0	23.1	39.2	49.5	49.9	23.2	4.4
	Dec	197.9	2.0	10.6	24.6	42.3	51.1	51.3	23.9	4.7
2002	March	191.6	1.9	10.3	24.1	41.3	48.8	49.0	23.7	4.6
	June	190.4	2.0	10.5	24.2	40.7	48.2	48.8	23.8	4.8
	Sept	197.4	2.0	10.2	23.4	41.4	50.2	52.4	25.2	4.9
	Dec	207.6	2.0	11.0	25.4	44.4	52.3	54.2	26.2	5.2
2003	March	198.2	1.9	10.5	24.5	42.9	49.4	51.2	25.2	4.9
	June	198.5	2.1	10.8	24.7	43.2	49.1	51.1	25.2	5.2
	Sept	200.1	2.0	10.2	23.7	43.1	49.3	52.8	26.1	5.2
	Dec	210.0	2.0	10.7	25.7	46.1	52.0	54.0	26.7	5.6
2004	March	207.9	2.0	10.9	26.2	45.9	51.1	52.6	26.6	5.6
	June	200.1	1.9	10.6	25.0	43.7	49.3	50.4	25.9	5.7
	Sept	203.6	1.8	10.0	24.0	44.1	50.7	52.7	26.6	5.6
	Dec	215.2	1.9	10.8	26.1	47.7	54.0	54.0	27.6	5.8

Notes: Conception figures are estimates derived from birth registrations and abortion notifications.
Rates for women of all ages, under 16, under 18, under 20 and 40 and over are based on the population of women aged 15–44, 13–15, 15–17, 15–19 and 40–44 respectively.
Revised mid-2002 to mid-2008 population estimates published on 13 May 2010 have been used in the calculation of conception rates.
Figures may therefore differ from those published previously.
For a quarterly analysis of conceptions to women under 18 for local authority areas see the National Statistics website www.statistics.gov.uk/statbase/product.asp?vlnk=15055

1 Figures for conceptions by age for the March, June and September quarters of 2009 exclude maternities relating to births in 2010 where the mother's age was not recorded.
2 Provisional quarterly rates for March 2009 are calculated using mid-2008 population estimates and 2008 based population projections for mid-2009.
3 Provisional quarterly rates for June 2009 are calculated using mid-2008 and mid-2009 population estimates.
4 Provisional quarterly rates for September 2009 are calculated using mid-2009 population estimates and 2008 based population projections for mid-2010.
P Provisional.

Source: Office for National Statistics (ONS).

Table 4.1 continued **Conceptions by age of woman at conception, 1990-2009**

England and Wales — residents

Year and quarter		Age of woman at conception								
		All ages	Under 16	Under 18	Under 20	20–24	25–29	30–34	35–39	40 and over
2005	March	204.6	1.9	10.4	25.1	45.4	50.8	51.0	26.6	5.7
	June	204.7	2.0	10.5	25.1	45.2	51.0	50.7	26.9	5.8
	Sept	210.9	2.0	10.4	25.3	45.6	53.3	53.1	27.5	6.0
	Dec	221.7	2.0	11.0	26.8	49.3	56.2	54.3	29.1	6.0
2006	March	214.0	1.8	10.2	25.4	47.5	54.2	52.4	28.3	6.2
	June	212.6	2.1	10.6	25.7	46.9	53.8	51.4	28.3	6.5
	Sept	215.1	2.0	10.0	24.7	46.3	55.3	53.6	28.9	6.4
	Dec	228.2	2.0	11.0	27.3	50.6	58.9	55.1	29.9	6.5
2007	March	221.6	2.0	10.8	26.7	49.4	57.0	52.7	29.3	6.5
	June	221.3	2.1	10.9	26.9	49.3	57.5	52.0	29.0	6.5
	Sept	222.7	2.0	10.4	25.7	48.6	58.9	53.0	29.8	6.7
	Dec	230.3	2.0	10.9	27.0	51.3	61.4	53.9	29.9	6.8
2008	March	224.3	2.0	10.7	26.9	49.9	59.3	52.4	29.2	6.7
	June	216.3	2.0	10.6	26.0	48.8	57.2	49.6	28.1	6.5
	Sept	221.4	1.8	9.9	24.7	48.9	59.7	52.2	29.2	6.7
	Dec	226.6	1.8	10.2	25.6	51.0	61.6	52.8	29.1	6.5
2009	March[1,P]	224.0	1.9	9.8	25.2	50.2	60.1	52.6	29.2	6.7
	June[1,P]	222.0	2.0	10.1	25.3	49.6	59.3	51.7	28.9	6.8
	Sept[1,P]	220.5	1.7	9.1	23.2	48.4	59.5	53.5	28.8	6.5
		(b) rates (conceptions per thousand women in age-group)								
1990		79.2	9.5	47.7	68.0	124.0	138.0	89.7	33.6	6.6
1991		77.7	8.9	44.6	64.1	120.2	135.1	90.1	34.4	6.6
1992		76.3	8.4	43.5	61.9	113.9	132.0	90.1	35.2	6.9
1993		76.2	8.1	42.4	59.7	110.5	131.7	92.5	36.6	7.4
1994		74.8	8.3	41.9	58.7	107.3	128.3	92.1	37.6	7.6
1995		73.8	8.6	41.9	58.7	105.8	124.8	92.8	38.1	7.9
1996		76.2	9.5	46.3	63.2	110.1	127.6	96.3	40.7	8.4
1997		74.6	8.9	45.9	62.6	107.2	124.7	96.2	41.4	8.7
1998		74.2	9.0	47.1	65.1	107.7	122.2	96.8	42.4	8.9
1999		71.9	8.3	45.1	63.1	103.9	118.0	95.3	42.9	9.1
2000		70.9	8.3	43.9	62.5	103.2	115.7	95.3	43.2	9.4
2001		70.3	8.0	42.7	60.8	102.5	114.2	96.7	44.3	9.6
2002		72.2	7.9	42.9	60.6	104.4	119.0	101.7	47.0	10.3
2003		73.7	7.9	42.3	59.9	107.1	122.2	106.1	49.1	10.7
2004		75.2	7.5	41.8	60.3	108.8	125.3	109.7	51.0	11.4
2005		76.0	7.8	41.5	60.0	108.6	125.9	112.1	53.2	11.5
2006		78.3	7.8	40.9	60.2	109.3	129.6	117.7	56.3	12.3
2007		80.5	8.3	42.0	61.7	111.4	133.5	122.0	58.2	12.6
2008		79.9	7.8	40.7	60.1	108.7	133.2	121.7	58.1	12.6
1996	March	77.4	10.0	47.5	65.4	114.4	129.3	95.8	40.1	8.1
	June	75.3	9.8	46.9	63.7	109.1	125.6	94.6	39.7	8.6
	Sept	75.2	9.1	44.4	59.8	105.6	127.3	97.4	41.1	8.5
	Dec	76.9	9.0	47.3	63.7	111.2	128.4	97.9	42.0	8.5
1997	March	73.4	8.6	45.5	61.8	106.3	123.0	92.8	40.0	8.5
	June	74.2	9.4	46.8	62.6	106.7	123.2	95.7	41.3	8.9
	Sept	73.7	8.5	44.0	60.2	103.0	124.2	97.4	41.4	8.4
	Dec	77.1	8.9	47.9	65.7	111.8	128.7	99.4	43.0	8.9
1998	March	74.3	9.1	48.4	66.1	108.8	121.9	95.2	41.8	8.5
	June	73.2	9.0	47.2	65.1	106.7	119.3	94.5	42.3	8.9
	Sept	74.2	8.9	45.5	62.9	104.6	123.7	99.1	42.7	9.0
	Dec	75.2	8.9	47.4	66.8	109.0	124.1	98.5	42.8	9.2
1999	March	72.2	8.0	45.3	64.5	105.9	117.8	94.6	42.0	8.8
	June	71.0	8.6	45.0	62.5	103.3	116.3	92.8	42.5	9.3
	Sept	71.4	8.1	44.2	61.1	100.2	117.6	97.3	43.5	9.1
	Dec	72.8	8.5	45.7	64.3	105.4	120.1	96.5	43.6	9.2
2000	March	71.9	8.5	45.2	64.6	106.0	117.1	94.5	43.4	9.4
	June	70.2	8.5	44.5	62.5	102.9	114.0	93.1	42.9	9.6
	Sept	69.8	8.4	42.0	59.9	98.8	114.9	96.5	42.9	9.3
	Dec	71.6	8.0	43.6	62.6	104.8	117.4	97.0	43.8	9.4
2001	March	70.7	7.8	43.3	62.7	104.8	114.5	95.0	43.7	9.7
	June	69.2	8.4	42.8	61.0	101.4	111.6	94.0	44.0	9.5
	Sept	69.1	7.7	41.1	57.9	98.4	113.1	97.6	44.2	9.3
	Dec	72.1	8.1	43.5	61.5	105.6	117.9	100.5	45.4	10.0
2002	March	71.3	7.7	43.0	61.5	105.0	116.3	98.5	45.8	9.9
	June	70.1	8.1	43.0	60.6	101.8	114.7	97.2	45.5	10.2
	Sept	71.8	7.7	41.3	57.7	102.0	119.2	103.7	47.6	10.2
	Dec	75.5	8.0	44.2	62.3	108.8	124.8	107.7	49.5	10.7

See notes on first page of table

Table 4.1 continued **Conceptions by age of woman at conception, 1990-2009**

England and Wales — residents

Year and quarter		Age of woman at conception								
		All ages	Under 16	Under 18	Under 20	20–24	25–29	30–34	35–39	40 and over
2003	March	73.6	7.8	42.9	61.0	107.2	121.4	104.7	48.6	10.3
	June	72.8	8.3	43.4	60.4	106.1	120.1	103.7	48.1	10.8
	Sept	72.5	7.9	40.6	56.9	104.2	119.6	106.7	49.3	10.5
	Dec	76.0	7.8	42.6	61.4	110.9	126.1	109.9	50.5	11.2
2004	March	76.2	7.8	43.4	63.1	111.4	125.5	109.4	51.1	11.4
	June	73.2	7.7	42.2	60.0	105.7	121.2	105.6	49.8	11.5
	Sept	73.6	7.1	39.2	56.7	104.9	122.7	110.0	50.6	11.1
	Dec	77.7	7.4	42.4	61.4	112.8	130.1	113.3	52.8	11.4
2005	March	75.1	7.6	41.5	60.0	108.7	123.9	109.9	51.9	11.4
	June	74.2	8.0	41.2	59.1	106.5	122.2	108.6	52.0	11.4
	Sept	75.5	7.8	40.6	59.0	105.6	125.7	113.4	52.8	11.6
	Dec	79.3	7.9	42.8	62.4	113.4	131.8	116.9	55.9	11.5
2006	March	78.2	7.1	40.5	60.3	111.0	129.2	116.3	55.7	12.2
	June	76.7	8.2	41.4	60.3	107.8	126.1	113.7	55.3	12.5
	Sept	76.8	7.7	38.8	57.2	104.6	127.5	118.3	56.0	12.1
	Dec	81.4	8.1	42.8	63.0	113.9	135.1	122.8	58.2	12.2
2007	March	80.8	8.1	43.0	63.0	113.2	132.7	121.3	58.4	12.6
	June	79.7	8.7	42.8	62.7	111.2	131.5	119.7	57.2	12.5
	Sept	79.4	8.2	40.1	59.1	107.9	132.7	121.5	58.5	12.6
	Dec	82.1	8.3	42.2	62.3	113.1	137.7	124.1	59.0	12.8
2008	March	81.1	8.1	42.3	62.9	110.8	134.3	123.1	58.6	12.7
	June	78.2	8.1	41.8	60.9	107.7	129.2	117.0	56.7	12.5
	Sept	79.2	7.6	38.8	57.4	106.3	132.7	122.1	58.6	12.7
	Dec	81.2	7.6	40.0	59.5	110.8	136.5	123.7	58.7	12.4
2009	March[1,2,P]	81.8	7.8	39.5	59.8	110.2	134.9	125.4	60.7	12.9
	June[1,3,P]	80.2	8.3	40.3	59.4	108.2	131.6	122.3	59.6	13.0
	Sept[1,4,P]	78.9	6.9	36.5	54.1	104.1	129.9	125.0	59.1	12.4
		(c) percentage terminated by abortion								
1990		19.9	50.8	41.1	35.7	22.3	13.5	13.8	23.1	43.2
1991		19.4	51.1	39.9	34.5	22.2	13.4	13.7	22.0	41.6
1992		19.3	48.6	39.1	33.9	22.3	13.9	13.9	22.2	41.5
1993		19.2	49.8	39.2	34.3	22.8	13.9	13.5	21.5	40.2
1994		19.5	50.3	39.8	34.7	23.4	14.3	13.6	21.1	40.9
1995		19.7	47.6	38.7	34.6	24.2	14.8	13.6	20.7	38.0
1996		20.8	49.2	40.0	36.2	25.7	15.6	14.1	21.2	37.6
1997		21.3	49.7	40.6	36.8	26.7	16.4	14.2	21.0	38.0
1998		22.3	52.4	42.0	37.8	27.8	17.1	14.9	21.5	37.9
1999		22.6	52.6	43.0	38.6	28.5	17.5	14.7	21.2	37.0
2000		22.7	54.0	44.2	39.3	29.2	17.7	14.5	20.5	35.4
2001		23.2	55.8	45.7	40.4	29.7	18.4	14.6	20.4	34.6
2002		22.5	55.6	45.3	39.9	28.8	17.9	13.9	19.5	34.6
2003		22.5	57.4	45.7	40.2	29.0	17.9	13.6	18.9	34.7
2004		22.4	57.2	45.6	40.1	28.9	18.2	13.2	18.3	33.0
2005		22.2	57.1	46.3	40.3	28.6	18.0	13.2	17.7	32.8
2006		22.3	59.8	48.4	41.9	28.7	18.0	13.1	17.1	31.8
2007		22.0	61.5	50.0	42.6	28.2	17.5	12.7	16.7	31.1
2008		21.8	61.5	49.4	42.4	28.0	17.4	12.8	16.3	30.0
1996	March	21.0	47.2	39.5	36.1	25.5	15.9	14.4	21.8	37.1
	June	21.3	49.2	40.7	36.6	26.5	16.0	14.4	21.8	38.2
	Sept	19.7	50.4	39.1	35.2	24.7	14.9	13.3	20.2	37.3
	Dec	21.1	50.2	40.8	37.0	26.3	15.8	14.2	21.0	37.9
1997	March	21.4	48.4	39.7	36.0	26.6	16.6	14.5	21.0	38.6
	June	21.7	49.5	40.3	36.7	27.1	16.8	14.6	21.9	39.1
	Sept	20.5	48.1	40.6	36.6	25.8	15.8	13.5	20.7	36.4
	Dec	21.6	52.5	41.6	37.6	27.2	16.5	14.3	20.6	37.8
1998	March	22.3	51.4	41.2	37.3	27.7	17.3	15.2	21.7	37.0
	June	22.8	52.7	42.2	38.2	28.4	17.6	15.3	22.2	38.9
	Sept	21.7	52.5	42.2	37.9	27.3	16.6	14.4	21.3	37.6
	Dec	22.2	53.0	42.3	37.7	28.0	17.0	14.7	21.0	38.2
1999	March	22.3	51.4	42.0	38.0	27.9	17.2	14.7	21.6	36.2
	June	23.0	52.9	43.5	38.6	28.6	18.0	15.5	21.5	37.8
	Sept	22.1	52.7	43.1	38.7	28.5	17.2	14.1	20.6	37.3
	Dec	22.8	53.5	43.6	39.1	29.2	17.7	14.7	21.2	36.6
2000	March	22.9	53.8	44.3	39.6	29.6	17.7	14.5	20.4	35.3
	June	23.2	55.1	44.4	39.2	29.7	18.1	15.1	20.9	35.1
	Sept	22.0	53.2	43.8	38.7	28.2	17.4	14.0	19.8	35.4
	Dec	22.8	54.0	44.1	39.8	29.2	17.5	14.4	20.8	35.9

See notes on first page of table

Table 4.1 continued **Conceptions by age of woman at conception, 1990-2009**

England and Wales — residents

Year and quarter		Age of woman at conception								
		All ages	Under 16	Under 18	Under 20	20–24	25–29	30–34	35–39	40 and over
2001	March	23.4	54.4	44.9	40.2	29.8	18.6	14.8	20.7	34.9
	June	23.8	58.8	47.0	41.1	30.3	18.6	15.3	21.0	36.0
	Sept	22.5	55.0	45.7	40.1	29.2	18.1	13.8	19.9	33.5
	Dec	22.9	54.9	45.2	40.0	29.5	18.1	14.4	20.2	34.1
2002	March	22.9	54.3	44.9	40.2	29.4	18.1	14.1	19.8	35.1
	June	22.9	55.6	45.0	39.4	28.9	18.4	14.5	20.1	34.8
	Sept	21.6	56.1	45.0	39.4	27.8	17.3	13.2	18.7	34.2
	Dec	22.6	56.4	46.3	40.7	29.0	17.8	13.9	19.4	34.5
2003	March	22.8	58.9	46.1	40.2	29.5	17.9	13.8	19.7	34.5
	June	23.1	58.3	46.2	40.9	29.3	18.4	14.2	19.2	36.1
	Sept	21.6	56.9	45.3	39.5	28.0	17.1	13.0	18.0	33.8
	Dec	22.5	55.7	45.0	40.3	29.0	18.1	13.5	18.5	34.5
2004	March	22.7	58.2	45.7	40.2	29.4	18.5	13.4	18.2	32.9
	June	23.0	57.2	46.3	40.8	29.2	18.6	13.7	19.2	33.5
	Sept	21.9	56.8	45.8	40.0	28.4	17.9	12.8	17.8	33.0
	Dec	22.0	56.3	44.5	39.3	28.6	17.8	13.0	18.2	32.5
2005	March	22.5	57.5	47.3	41.1	29.2	18.1	13.1	18.0	32.6
	June	22.7	57.0	45.8	40.3	28.9	18.6	13.9	17.8	33.8
	Sept	21.4	56.2	45.3	39.0	27.5	17.5	12.6	17.2	32.1
	Dec	22.2	57.5	46.9	40.6	28.7	17.8	13.1	17.7	32.7
2006	March	22.5	59.0	47.7	41.6	29.1	18.4	13.0	17.5	31.1
	June	23.1	59.5	49.0	42.5	29.6	18.8	13.9	17.8	31.6
	Sept	21.5	60.4	48.0	41.3	27.7	17.5	12.7	16.3	32.8
	Dec	22.0	60.2	49.1	42.0	28.3	17.4	12.8	16.9	31.7
2007	March	22.7	62.6	50.7	43.2	29.5	18.3	13.0	16.9	31.1
	June	22.5	61.9	50.3	43.1	28.6	18.0	12.8	16.9	31.5
	Sept	21.0	57.9	48.5	41.3	26.9	16.5	12.3	16.0	30.8
	Dec	21.8	63.6	50.4	42.6	28.0	17.2	12.5	16.8	30.8
2008	March	22.6	62.2	50.6	43.8	28.9	17.9	13.1	16.8	31.2
	June	22.4	61.5	49.0	42.3	28.4	18.2	13.2	16.8	29.9
	Sept	21.2	61.7	48.9	41.6	27.3	16.9	12.6	15.6	29.6
	Dec	21.2	60.8	49.0	41.7	27.5	16.6	12.5	16.0	29.1
2009	March[1,p]	21.4	59.0	48.9	41.8	27.7	16.8	12.8	16.0	29.3
	June[1,p]	21.5	60.1	48.8	42.1	27.6	17.2	12.8	16.2	29.1
	Sept[1,p]	20.3	59.4	48.5	41.4	26.2	16.2	12.0	15.6	29.4

See notes on first page of table

Table 4.2 **Abortions: residents and non-residents: age and gestation (residents only)**

England and Wales

Numbers (thousands) and rates and percentages for gestation weeks

Year and quarter	All ages			All women (residents)										
				Age group							Gestation weeks (percentages)			
	All women	Residents	Non-residents	Under 16	16–19	20–24	25–29	30–34	35–44	45 and over	Under 9	9–12	13–19	20 and over
	Numbers (thousands)										**Percentages**			
1971	126.8	94.6	32.2	2.3	18.2	24.5	17.3	14.2	15.9	0.5	16.6	57.9	21.8	1.0
1976	129.7	101.9	27.8	3.4	24.0	23.6	19.3	14.6	14.7	0.5	24.8	55.8	15.0	1.1
1981	162.5	128.6	33.9	3.5	31.4	34.3	24.9	18.7	17.6	0.6	31.6	53.4	13.5	1.3
1986	172.3	147.6	24.7	3.9	33.8	45.3	28.7	18.0	17.5	0.4	33.4	53.8	11.5	1.4
1991	179.5	167.4	12.1	3.2	31.1	52.7	36.6	23.4	17.9	0.4	35.2	52.9	10.6	1.2
1996	177.5	167.9	9.6	3.6	28.8	46.4	39.3	28.2	21.1	0.4	40.0	48.7	10.1	1.3
2001	186.3	176.4	9.9	3.7	33.4	48.3	36.5	28.8	25.2	0.5	42.8	45.0	10.6	1.6
2002	185.4	175.9	9.5	3.7	33.0	48.4	35.8	28.5	26.0	0.5	42.2	45.2	11.0	1.6
2003	190.7	181.6	9.1	4.0	34.2	51.1	36.0	28.7	26.9	0.5	43.6	43.7	11.1	1.6
2004	194.5	185.7	8.8	3.8	35.5	52.8	37.8	28.1	27.3	0.5	46.2	41.5	10.8	1.6
2005	194.4	186.4	7.9	3.8	35.3	53.3	38.3	27.8	27.2	0.6	53.6	35.7	9.3	1.4
2006	201.2	193.7	7.4	4.0	37.3	55.3	40.4	28.2	27.9	0.7	54.9	34.3	9.2	1.5
2007	205.6	198.5	7.1	4.4	39.6	57.0	41.7	27.3	27.9	0.7	57.9	31.9	8.8	1.5
2008	202.2	195.3	6.9	4.1	38.6	56.2	41.3	27.0	26.9	0.7	61.6	28.7	8.2	1.5
2009	195.7	189.1	6.6	3.8	36.2	54.7	40.6	26.7	26.2	0.7	64.3	26.3	8.0	1.5
2007 March	55.3	53.3	1.9	1.2	10.8	15.4	11.1	7.3	7.4	0.2	54.1	35.0	9.4	1.6
June	51.2	49.4	1.8	1.1	9.9	14.3	10.3	6.7	6.8	0.2	56.6	32.6	9.2	1.5
Sept	49.9	48.2	1.7	1.0	9.5	13.5	10.2	6.6	7.0	0.2	58.6	31.2	8.8	1.4
Dec	49.2	47.6	1.6	1.1	9.4	13.7	10.0	6.6	6.7	0.2	62.7	28.3	7.6	1.4
2008 March	53.4	51.6	1.8	1.1	10.5	14.8	10.8	7.0	7.2	0.2	58.4	31.0	9.0	1.6
June	52.5	50.8	1.8	1.1	10.1	14.6	10.9	6.9	7.0	0.2	60.8	29.5	8.3	1.4
Sept	48.7	47.0	1.7	1.0	9.2	13.4	10.3	6.5	6.5	0.2	62.9	27.6	8.0	1.4
Dec	47.5	45.9	1.6	1.0	8.8	13.3	9.9	6.5	6.2	0.2	64.8	26.2	7.6	1.4
2009 March	51.8	50.1	1.7	1.1	9.8	14.7	10.6	6.9	6.8	0.2	60.9	28.5	8.9	1.7
June	50.0	48.3	1.7	0.9	9.2	14.1	10.4	6.8	6.8	0.2	64.1	26.8	7.8	1.3
Sept	47.7	46.0	1.7	1.0	8.8	13.1	10.0	6.5	6.5	0.2	64.7	25.9	7.9	1.5
Dec	46.2	44.7	1.5	0.8	8.4	12.9	9.8	6.5	6.3	0.2	67.8	23.7	7.1	1.4
2010 March[3]	52.2	50.4	1.8	1.0	9.6	14.9	10.8	7.2	6.8	0.2	64.2	26.3	8.0	1.5
June[3]	49.3	47.6	1.7	1.0	8.8	13.9	10.1	7.0	6.6	0.2	65.9	25.1	7.6	1.4
Rates (per thousand women residents)														
	ASR[2] (women 15–44)	Crude rate (women 15–44)												
1971	9.9	10.1		2.3	13.9	13.1	10.7	10.0	5.6	0.3				
1976	10.2	10.5		2.9	16.9	14.2	10.4	9.2	5.3	0.3				
1981	11.9	12.4		3.0	19.4	18.6	13.1	10.1	5.9	0.4				
1986	13.0	13.5		3.7	22.0	21.9	15.5	10.8	5.1	0.3				
1991	15.0	15.2		3.8	24.0	27.1	18.5	12.6	5.1	0.3				
1996	16.0	15.7		3.9	24.2	28.4	19.9	13.6	6.1	0.2				
2001	17.0	16.2		3.7	26.6	30.6	20.9	14.2	6.4	0.3				
2002	17.0	16.1		3.7	25.8	30.1	21.4	14.2	6.5	0.3				
2003	17.5	16.6		3.9	26.1	31.2	22.1	14.6	6.6	0.3				
2004	17.8	16.9		3.7	26.5	31.9	23.3	14.7	6.7	0.3				
2005	17.8	17.0		3.7	26.3	32.0	23.6	14.5	6.6	0.3				
2006	18.3	17.5		3.9	27.3	32.5	24.3	15.1	6.8	0.4				
2007	18.6	17.9		4.4	28.9	32.6	24.3	15.1	6.7	0.4				
2008	18.2	17.6		4.2	27.8	31.6	23.9	15.6	6.5	0.4				
2009	17.5	17.0		4.0	26.1	30.0	22.8	15.7	6.4	0.4				
2007 March	20.1	19.2		4.7	31.4	35.3	25.6	16.7	7.2	0.4				
June	18.5	17.8		4.4	28.8	32.7	23.7	15.5	6.8	0.4				
Sept	18.0	17.4		4.2	27.7	30.8	23.3	15.4	6.8	0.4				
Dec	17.8	17.2		4.4	27.2	31.1	22.7	15.3	6.5	0.4				
2008 March	19.1	18.5		4.7	30.4	32.6	24.1	16.3	7.0	0.4				
June	18.7	18.2		4.4	29.3	32.1	24.1	16.0	6.9	0.3				
Sept	17.3	16.9		4.0	26.6	29.3	22.6	15.3	6.3	0.4				
Dec	16.9	16.4		4.1	25.4	29.0	21.5	15.2	6.1	0.3				
2009 March	18.5	18.1		4.4	28.5	31.9	23.5	16.3	6.7	0.4				
June	17.8	17.4		4.0	26.7	30.4	22.9	16.0	6.6	0.3				
Sept	16.9	16.6		4.1	25.6	28.1	21.9	15.3	6.4	0.4				
Dec	16.4	16.1		3.5	24.4	27.6	21.0	15.2	6.3	0.4				
2010 March[3]	18.5	18.2		4.2	28.1	31.8	23.3	16.7	6.8	0.4				
June[3]	17.5	17.2		4.3	25.6	29.8	21.8	15.2	6.7	0.3				

Notes: Rates for under 16 and 45 and over are based on female populations aged 13–15 and 45–49 respectively

1 Includes cases with not stated age and/or gestation week.

2 Rates for all women residents age-standardised to the European population for ages 15–44

3 Includes incomplete forms that have been returned to practitioners

Table 5.1 Period expectation of life at birth and selected ages, UK and constituent countries

Constituent countries of the United Kingdom

Years

Year	Males								Females							
	At birth	At age 5	20	30	50	60	70	80	At birth	At age 5	20	30	50	60	70	80
United Kingdom																
1981	70.8	66.9	52.3	42.7	24.1	16.3	10.1	5.8	76.8	72.7	57.9	48.2	29.2	20.8	13.3	7.5
1986	71.9	67.8	53.2	43.6	24.9	16.8	10.5	6.0	77.7	73.4	58.6	48.8	29.8	21.2	13.8	7.8
1991	73.2	68.9	54.2	44.7	26.0	17.7	11.1	6.4	78.7	74.3	59.5	49.7	30.6	21.9	14.3	8.2
1996	74.2	69.8	55.1	45.6	26.9	18.5	11.6	6.6	79.4	74.9	60.1	50.3	31.2	22.3	14.5	8.3
2000	75.3	70.9	56.1	46.6	28.0	19.5	12.3	7.0	80.1	75.6	60.8	51.0	31.9	23.0	15.0	8.6
2001	75.6	71.2	56.4	46.9	28.2	19.7	12.5	7.1	80.4	75.8	61.0	51.2	32.1	23.2	15.1	8.7
2002	75.9	71.4	56.6	47.1	28.5	19.9	12.6	7.1	80.5	75.9	61.1	51.3	32.2	23.3	15.2	8.7
2003	76.2	71.7	56.9	47.4	28.7	20.2	12.8	7.3	80.7	76.1	61.3	51.5	32.4	23.4	15.3	8.7
2004	76.5	72.0	57.3	47.7	29.0	20.5	13.1	7.4	80.9	76.4	61.5	51.7	32.6	23.6	15.5	8.8
2005	76.9	72.4	57.6	48.0	29.4	20.8	13.4	7.6	81.3	76.7	61.9	52.0	32.9	23.9	15.8	9.0
2006	77.2	72.7	57.9	48.3	29.6	21.1	13.6	7.7	81.5	76.9	62.0	52.2	33.1	24.1	15.9	9.1
2007	77.4	72.9	58.1	48.5	29.9	21.3	13.8	7.8	81.6	77.1	62.2	52.4	33.2	24.3	16.1	9.2
England and Wales																
1981	71.0	67.1	52.5	42.9	24.3	16.4	10.1	5.8	77.0	72.9	58.1	48.3	29.4	20.9	13.4	7.5
1986	72.1	68.0	53.4	43.8	25.0	16.9	10.5	6.1	77.9	73.6	58.8	49.0	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.4	44.8	26.1	17.8	11.2	6.4	78.9	74.5	59.7	49.9	30.8	22.0	14.4	8.3
1996	74.5	70.1	55.3	45.8	27.1	18.6	11.6	6.6	79.6	75.1	60.2	50.4	31.3	22.5	14.6	8.4
2000	75.6	71.1	56.4	46.8	28.1	19.6	12.3	7.0	80.3	75.8	60.9	51.1	32.0	23.1	15.1	8.6
2001	75.9	71.4	56.7	47.1	28.4	19.9	12.5	7.1	80.5	76.0	61.2	51.3	32.2	23.3	15.2	8.7
2002	76.1	71.6	56.9	47.3	28.6	20.1	12.7	7.2	80.7	76.1	61.3	51.5	32.3	23.4	15.3	8.7
2003	76.4	71.9	57.2	47.6	28.9	20.3	12.9	7.3	80.9	76.3	61.5	51.7	32.5	23.6	15.4	8.8
2004	76.8	72.3	57.5	47.9	29.2	20.6	13.2	7.4	81.1	76.6	61.7	51.9	32.7	23.8	15.6	8.9
2005	77.2	72.7	57.9	48.3	29.6	21.0	13.5	7.6	81.5	76.9	62.0	52.2	33.1	24.1	15.9	9.1
2006	77.4	72.9	58.2	48.5	29.8	21.2	13.7	7.7	81.7	77.1	62.2	52.4	33.2	24.3	16.0	9.2
2007	77.7	73.2	58.4	48.8	30.0	21.4	13.9	7.8	81.8	77.3	62.4	52.6	33.4	24.4	16.2	9.2
England																
1981	71.1	67.1	52.5	42.9	24.3	16.4	10.1	5.8	77.0	72.9	58.2	48.4	29.4	20.9	13.4	7.5
1986	72.2	68.1	53.4	43.8	25.1	17.0	10.6	6.1	77.9	73.6	58.8	49.0	30.0	21.4	13.9	7.9
1991	73.4	69.1	54.4	44.9	26.2	17.8	11.2	6.4	78.9	74.5	59.7	49.9	30.8	22.0	14.4	8.3
1996	74.5	70.1	55.4	45.8	27.1	18.7	11.7	6.6	79.6	75.1	60.3	50.4	31.3	22.5	14.6	8.4
2000	75.6	71.2	56.4	46.9	28.2	19.6	12.4	7.0	80.3	75.8	61.0	51.2	32.0	23.1	15.1	8.6
2001	75.9	71.4	56.7	47.1	28.5	19.9	12.6	7.1	80.6	76.0	61.2	51.4	32.2	23.3	15.2	8.7
2002	76.1	71.7	56.9	47.4	28.7	20.1	12.7	7.2	80.7	76.1	61.3	51.5	32.4	23.4	15.3	8.7
2003	76.5	72.0	57.2	47.6	28.9	20.4	12.9	7.3	80.9	76.4	61.5	51.7	32.6	23.6	15.4	8.8
2004	76.8	72.3	57.6	48.0	29.2	20.7	13.2	7.4	81.1	76.6	61.7	51.9	32.8	23.8	15.6	8.9
2005	77.2	72.7	57.9	48.3	29.6	21.0	13.5	7.6	81.5	76.9	62.1	52.3	33.1	24.1	15.9	9.1
2006	77.5	73.0	58.2	48.6	29.8	21.2	13.7	7.7	81.7	77.1	62.3	52.4	33.3	24.3	16.0	9.2
2007	77.7	73.2	58.4	48.8	30.1	21.5	13.9	7.9	81.9	77.3	62.4	52.6	33.4	24.4	16.2	9.2
Wales																
1981	70.4	66.5	51.9	42.2	23.6	15.8	9.7	5.6	76.4	72.3	57.5	47.7	28.9	20.5	13.1	7.4
1986	71.6	67.5	52.8	43.2	24.6	16.6	10.3	6.0	77.5	73.3	58.5	48.7	29.7	21.1	13.7	7.8
1991	73.1	68.8	54.1	44.6	25.8	17.6	11.0	6.4	78.8	74.3	59.5	49.7	30.6	21.8	14.3	8.3
1996	73.8	69.4	54.7	45.3	26.6	18.2	11.3	6.4	79.1	74.6	59.7	49.9	30.9	22.1	14.4	8.3
2000	74.8	70.4	55.7	46.2	27.6	19.1	12.0	6.8	79.7	75.2	60.4	50.6	31.5	22.6	14.7	8.4
2001	75.3	70.8	56.0	46.6	28.0	19.5	12.3	7.0	80.0	75.4	60.6	50.8	31.7	22.8	14.9	8.5
2002	75.5	70.9	56.2	46.8	28.2	19.7	12.4	7.1	80.1	75.5	60.7	50.9	31.8	22.9	15.0	8.6
2003	75.8	71.2	56.5	47.0	28.4	19.9	12.6	7.2	80.3	75.7	60.9	51.1	32.0	23.1	15.1	8.6
2004	76.1	71.6	56.8	47.3	28.7	20.2	12.8	7.3	80.6	76.0	61.1	51.3	32.2	23.3	15.2	8.7
2005	76.6	72.0	57.3	47.7	29.2	20.6	13.2	7.6	80.9	76.3	61.5	51.6	32.6	23.7	15.5	8.9
2006	76.7	72.1	57.4	47.8	29.3	20.8	13.4	7.6	81.1	76.5	61.6	51.8	32.7	23.8	15.7	9.0
2007	76.9	72.3	57.5	48.0	29.5	21.0	13.5	7.7	81.2	76.6	61.8	51.9	32.9	23.9	15.9	9.1
Scotland																
1981	69.1	65.2	50.6	41.1	22.9	15.4	9.6	5.5	75.3	71.2	56.4	46.7	27.9	19.7	12.7	7.2
1986	70.2	66.0	51.4	41.9	23.5	15.8	9.9	5.7	76.2	71.9	57.1	47.3	28.4	20.1	13.0	7.5
1991	71.4	67.1	52.5	43.0	24.6	16.6	10.4	6.1	77.1	72.7	57.9	48.1	29.2	20.7	13.5	7.9
1996	72.2	67.8	53.1	43.7	25.3	17.3	10.9	6.3	77.9	73.3	58.5	48.8	29.8	21.2	13.8	8.0
2000	73.1	68.6	53.9	44.6	26.3	18.2	11.5	6.6	78.6	74.0	59.2	49.4	30.5	21.8	14.1	8.1
2001	73.3	68.8	54.2	44.8	26.6	18.4	11.7	6.8	78.8	74.2	59.4	49.6	30.7	22.0	14.3	8.2
2002	73.5	69.0	54.3	45.0	26.7	18.6	11.8	6.8	78.9	74.3	59.5	49.7	30.8	22.1	14.4	8.2
2003	73.8	69.3	54.6	45.2	27.0	18.8	12.0	6.9	79.1	74.5	59.7	49.9	30.9	22.2	14.5	8.3
2004	74.2	69.7	55.0	45.6	27.3	19.1	12.2	7.0	79.3	74.7	59.9	50.1	31.1	22.4	14.7	8.4
2005	74.6	70.1	55.4	45.9	27.7	19.4	12.5	7.2	79.6	75.0	60.2	50.4	31.4	22.7	14.9	8.5
2006	74.8	70.3	55.5	46.1	27.9	19.6	12.6	7.2	79.7	75.1	60.3	50.5	31.5	22.8	15.0	8.6
2007	75.0	70.4	55.7	46.3	28.1	19.9	12.8	7.3	79.9	75.2	60.4	50.6	31.7	22.9	15.1	8.6
Northern Ireland																
1981	69.2	65.4	50.9	41.5	23.2	15.6	9.7	5.8	75.5	71.6	56.8	47.1	28.3	20.0	12.8	7.3
1986	70.9	66.8	52.2	42.7	24.2	16.4	10.4	6.2	77.1	72.9	58.1	48.3	29.3	20.8	13.4	7.8
1991	72.6	68.2	53.6	44.1	25.5	17.3	11.0	6.4	78.4	74.0	59.2	49.4	30.3	21.6	14.2	8.3
1996	73.8	69.4	54.7	45.3	26.6	18.2	11.4	6.6	79.2	74.7	59.9	50.0	30.9	22.1	14.4	8.4
2000	74.8	70.4	55.7	46.2	27.6	19.1	11.9	6.6	79.8	75.2	60.4	50.6	31.5	22.6	14.6	8.2
2001	75.2	70.7	56.1	46.6	27.9	19.4	12.3	6.9	80.1	75.6	60.7	50.9	31.8	22.9	14.9	8.4
2002	75.6	71.1	56.4	46.9	28.2	19.7	12.4	7.0	80.4	75.9	61.0	51.2	32.0	23.1	15.1	8.5
2003	75.8	71.4	56.7	47.1	28.4	19.9	12.6	7.2	80.6	76.0	61.1	51.3	32.2	23.3	15.2	8.6
2004	76.0	71.6	56.9	47.4	28.7	20.2	12.8	7.3	80.8	76.3	61.4	51.6	32.5	23.5	15.4	8.7
2005	76.1	71.6	57.0	47.5	28.9	20.4	13.0	7.3	81.0	76.4	61.6	51.8	32.7	23.7	15.6	8.8
2006	76.2	71.7	57.1	47.6	29.1	20.6	13.1	7.3	81.2	76.6	61.8	52.0	32.8	23.9	15.7	8.9
2007	76.3	71.8	57.2	47.7	29.2	20.7	13.2	7.3	81.2	76.6	61.8	52.0	32.9	24.0	15.7	8.9

Note: All figures are based on a three-year period, so that for instance 2003 represents 2002–2004. The population estimates used to calculate these life expectancies are the latest available at time of publication of the 2006–2008 interim life tables (21 October 2009). All figures are based on death registrations.
A minor methodological change was introducted for the 2006 figures to ensure consistency with population estimates of the very elderly for England and Wales. The effect on calculated life expectancies is marginal.

Table 6.1 Deaths: age and sex

England and Wales

Numbers (thousands) and rates

Year and quarter	All ages	Age group												
		Under 1[1]	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85 and over
Numbers (thousands)														
Males														
1976	300.1	4.88	0.88	0.68	0.64	1.66	1.66	3.24	5.93	20.4	52.0	98.7	80.3	29.0
1981	289.0	4.12	0.65	0.45	0.57	1.73	1.58	3.18	5.54	16.9	46.9	92.2	86.8	28.5
1986	287.9	3.72	0.57	0.33	0.38	1.43	1.75	3.10	5.77	14.4	43.6	84.4	96.2	32.2
1991	277.6	2.97	0.55	0.34	0.35	1.21	1.76	3.69	6.16	13.3	34.9	77.2	95.8	39.3
1996	268.7	2.27	0.44	0.24	0.29	0.93	1.41	4.06	5.84	13.6	30.1	71.0	90.7	47.8
2001	252.4	1.81	0.32	0.19	0.28	0.88	1.27	3.63	6.07	13.3	27.5	57.5	87.0	52.7
2002	254.4	1.83	0.33	0.20	0.29	0.91	1.31	3.67	6.26	13.0	27.8	56.6	88.5	53.7
2003	254.4	1.83	0.31	0.20	0.26	0.85	1.35	3.48	6.44	12.7	28.3	55.1	89.6	54.1
2004	245.2	1.81	0.30	0.17	0.25	0.83	1.26	3.28	6.36	12.4	27.1	52.7	87.4	51.3
2005	243.9	1.88	0.30	0.17	0.27	0.86	1.22	3.15	6.36	12.2	27.3	51.0	84.7	54.5
2006	240.9	1.86	0.29	0.19	0.26	0.84	1.21	3.13	6.32	12.3	27.6	48.9	81.9	56.2
2007	240.8	1.89	0.34	0.18	0.23	0.80	1.22	3.14	6.26	11.9	27.5	47.8	80.6	58.9
2008	243.0	1.92	0.28	0.18	0.19	0.78	1.26	3.09	6.42	12.3	27.1	47.9	79.8	61.9
2009	238.1	1.86	0.25	0.15	0.20	0.78	1.12	2.97	6.47	12.0	26.6	46.7	77.1	61.9
Females														
1976	298.5	3.46	0.59	0.45	0.42	0.62	0.67	1.94	4.04	12.8	29.6	67.1	104.7	72.1
1981	288.9	2.90	0.53	0.30	0.37	0.65	0.64	1.82	3.74	10.5	27.2	62.8	103.6	73.9
1986	293.3	2.59	0.49	0.25	0.27	0.56	0.67	1.65	3.83	8.8	25.8	58.4	106.5	83.6
1991	292.5	2.19	0.44	0.25	0.22	0.46	0.64	1.73	3.70	8.4	21.3	54.2	103.3	95.7
1996	291.5	1.69	0.32	0.18	0.20	0.43	0.51	1.85	3.66	8.9	18.2	50.2	96.7	108.7
2001	277.9	1.43	0.27	0.19	0.18	0.38	0.47	1.59	3.77	8.9	17.6	40.5	88.8	113.9
2002	281.0	1.34	0.24	0.16	0.20	0.39	0.47	1.60	3.77	8.7	17.8	39.6	90.2	116.4
2003	284.7	1.48	0.28	0.16	0.21	0.37	0.49	1.64	3.88	8.6	18.0	39.0	92.7	118.0
2004	269.0	1.46	0.25	0.14	0.17	0.41	0.49	1.54	3.86	8.1	17.6	37.0	88.4	109.5
2005	269.1	1.37	0.22	0.13	0.19	0.38	0.48	1.48	3.81	8.2	17.8	35.9	86.3	112.9
2006	261.7	1.51	0.27	0.14	0.17	0.38	0.44	1.38	3.80	8.1	17.9	34.5	81.2	111.9
2007	263.3	1.46	0.24	0.12	0.19	0.36	0.45	1.36	3.79	8.1	18.2	33.9	79.4	115.8
2008	266.1	1.45	0.27	0.14	0.14	0.35	0.46	1.45	3.81	8.3	18.2	33.9	77.8	119.8
2009	253.3	1.46	0.24	0.13	0.17	0.33	0.43	1.40	3.65	8.0	17.7	32.7	72.9	114.1
Rates (deaths per 1,000 population in each age group)														
Males														
1976	12.5	16.2	0.65	0.34	0.31	0.88	0.96	0.92	2.09	6.97	19.6	50.3	116.4	243.2
1981	12.0	12.6	0.53	0.27	0.29	0.82	0.83	0.89	1.83	6.11	17.7	45.6	105.2	226.5
1986	11.8	11.0	0.44	0.21	0.23	0.72	0.83	0.88	1.68	5.27	16.6	42.8	101.2	215.4
1991	11.2	8.3	0.40	0.21	0.23	0.72	0.89	0.94	1.76	4.56	13.9	38.1	93.1	205.6
1996	10.7	6.8	0.32	0.14	0.18	0.60	0.85	1.01	1.67	4.06	11.9	34.5	85.0	198.8
2001	9.9	5.9	0.25	0.11	0.16	0.53	0.80	0.97	1.56	3.89	10.0	28.0	74.0	186.4
2002	9.9	6.0	0.26	0.12	0.16	0.53	0.82	1.00	1.58	3.89	9.7	27.4	73.6	188.1
2003	9.8	5.7	0.25	0.12	0.15	0.49	0.82	0.97	1.61	3.82	9.6	26.4	72.9	191.1
2004	9.4	5.5	0.25	0.11	0.14	0.47	0.73	0.93	1.58	3.72	9.0	25.1	70.0	176.0
2005	9.3	5.7	0.24	0.10	0.16	0.48	0.69	0.89	1.56	3.61	8.9	24.1	67.4	172.1
2006	9.1	5.4	0.23	0.12	0.15	0.46	0.67	0.89	1.55	3.59	8.8	23.2	64.6	163.4
2007	9.1	5.3	0.26	0.12	0.13	0.43	0.65	0.89	1.54	3.42	8.7	22.5	62.8	161.0
2008	9.1	5.3	0.21	0.12	0.11	0.43	0.65	0.87	1.59	3.45	8.6	22.0	61.4	161.4
2009	8.8	5.1	0.18	0.10	0.12	0.43	0.58	0.83	1.63	3.29	8.4	21.0	58.5	155.0
2007 March	10.0	5.3	0.28	0.12	0.14	0.47	0.65	0.92	1.55	3.68	9.2	24.4	69.9	184.3
June	8.8	5.8	0.26	0.12	0.14	0.44	0.65	0.90	1.50	3.39	8.6	22.1	60.7	152.3
Sept	8.2	5.1	0.22	0.09	0.13	0.40	0.61	0.88	1.49	3.18	8.1	20.7	57.1	140.5
Dec	9.3	5.2	0.28	0.13	0.12	0.43	0.69	0.88	1.61	3.45	9.0	22.8	63.6	167.3
2008 March	9.7	5.4	0.21	0.12	0.11	0.37	0.59	0.84	1.57	3.66	9.0	23.4	65.7	177.7
June	8.9	5.3	0.22	0.12	0.12	0.45	0.61	0.87	1.59	3.40	8.5	21.7	60.0	155.2
Sept	8.2	5.1	0.18	0.13	0.10	0.44	0.70	0.88	1.57	3.27	8.1	20.4	55.0	139.0
Dec	9.5	5.4	0.25	0.09	0.12	0.46	0.70	0.89	1.63	3.48	8.6	22.7	64.7	173.7

Notes: Figures represent the numbers of deaths registered in each year up to 1992 and the numbers of deaths occurring in each year from 1993 to 2001.
From 2002 onwards figures relate to the numbers of deaths registered in each year.
Death rates for 2009 have been updated using the 2009 population estimates published on 24 June 2010.
Death rates for 2002 to 2008 have been calculated using revised mid-2002 to mid-2008 population estimates which were published on 13 May 2010.
Numbers of deaths by age group may not sum to all ages due to rounding.

1 Rates per 1,000 live births.

2 Death rates for 2010 are based on the 2008-based population projections for 2010.

P Provisional.

Source: Office for National Statistics.

Table 6.1 continued **Deaths: age and sex**

England and Wales

Numbers (thousands) and rates

Year and quarter	All ages	Age group												
		Under 1[1]	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85 and over
2009 March	9.9	5.4	0.18	0.06	0.13	0.43	0.57	0.82	1.61	3.43	9.0	22.9	67.1	182.7
June	8.4	5.3	0.18	0.10	0.10	0.41	0.56	0.79	1.58	3.12	8.2	20.3	55.6	144.3
Sept	8.0	5.0	0.16	0.08	0.10	0.39	0.55	0.81	1.57	3.16	7.9	19.4	52.8	134.8
Dec	9.0	4.8	0.20	0.14	0.15	0.49	0.65	0.88	1.74	3.47	8.5	21.4	58.6	158.7
2010[2] March[P]	9.6	4.9	0.21	0.12	0.10	0.31	0.54	0.77	1.58	3.37	8.7	22.0	62.1	173.0
June[P]	8.5	4.8	0.19	0.08	0.10	0.36	0.54	0.73	1.48	3.11	8.2	20.1	54.6	143.7
Females														
1976	11.8	12.2	0.46	0.24	0.21	0.35	0.40	0.56	1.46	4.30	10.1	26.0	74.6	196.6
1981	11.3	9.4	0.46	0.19	0.19	0.32	0.35	0.52	1.26	3.80	9.5	24.1	66.2	178.2
1986	11.4	8.0	0.40	0.17	0.17	0.29	0.33	0.47	1.12	3.24	9.2	23.4	62.5	169.4
1991	11.2	6.4	0.33	0.16	0.15	0.29	0.33	0.44	1.05	2.87	8.2	21.8	58.7	161.6
1996	11.0	5.3	0.25	0.10	0.12	0.29	0.31	0.46	1.04	2.63	7.1	20.6	55.8	158.9
2001	10.4	4.9	0.22	0.12	0.11	0.24	0.30	0.42	0.96	2.57	6.3	17.4	50.1	155.0
2002	10.5	4.6	0.20	0.10	0.12	0.24	0.29	0.43	0.94	2.54	6.0	17.0	50.5	159.6
2003	10.6	4.9	0.24	0.10	0.12	0.22	0.30	0.45	0.96	2.52	5.9	16.7	51.3	165.7
2004	9.9	4.7	0.22	0.09	0.10	0.24	0.30	0.43	0.94	2.40	5.7	15.8	48.7	154.2
2005	9.9	4.3	0.19	0.09	0.12	0.22	0.28	0.42	0.92	2.39	5.6	15.3	48.1	152.2
2006	9.6	4.6	0.22	0.09	0.10	0.22	0.25	0.39	0.92	2.33	5.6	14.8	45.7	143.8
2007	9.6	4.3	0.19	0.08	0.12	0.21	0.25	0.39	0.92	2.27	5.6	14.5	44.9	143.6
2008	9.6	4.2	0.21	0.09	0.09	0.20	0.25	0.41	0.93	2.28	5.5	14.2	44.2	145.5
2009	9.1	4.2	0.18	0.09	0.11	0.19	0.23	0.40	0.91	2.15	5.4	13.4	41.4	136.2
2007 March	10.9	4.5	0.24	0.07	0.12	0.27	0.27	0.38	0.97	2.31	5.9	16.3	51.7	166.9
June	9.2	4.6	0.21	0.10	0.13	0.18	0.22	0.44	0.86	2.31	5.5	14.1	42.8	135.6
Sept	8.5	4.1	0.14	0.06	0.11	0.18	0.28	0.36	0.87	2.22	5.2	12.9	39.9	124.3
Dec	9.8	4.2	0.16	0.10	0.12	0.20	0.25	0.38	0.96	2.25	5.7	14.7	45.4	147.9
2008 March	10.4	4.5	0.20	0.07	0.09	0.22	0.23	0.42	0.93	2.34	5.6	15.0	48.7	160.7
June	9.3	3.6	0.20	0.11	0.10	0.16	0.28	0.41	0.92	2.29	5.5	13.8	42.8	139.7
Sept	8.5	4.4	0.20	0.09	0.08	0.20	0.24	0.43	0.91	2.17	5.2	13.0	38.9	123.4
Dec	10.3	4.3	0.25	0.09	0.08	0.23	0.26	0.40	0.97	2.32	5.8	15.0	46.4	158.4
2009 March	10.6	4.3	0.21	0.09	0.10	0.18	0.24	0.42	0.96	2.25	5.9	14.8	48.5	166.0
June	8.5	4.4	0.17	0.09	0.07	0.19	0.20	0.39	0.85	2.08	5.1	12.9	39.1	124.7
Sept	8.0	3.8	0.17	0.09	0.09	0.17	0.22	0.37	0.85	2.03	5.0	12.3	36.3	116.7
Dec	9.3	4.4	0.20	0.09	0.16	0.23	0.27	0.41	0.97	2.24	5.5	13.7	41.9	138.2
2010[2] March[P]	10.4	4.2	0.18	0.11	0.13	0.21	0.21	0.39	0.94	2.21	5.8	13.9	45.8	159.6
June[P]	8.7	4.2	0.19	0.10	0.07	0.21	0.22	0.35	0.90	2.01	5.1	13.0	38.8	127.5

See notes on first page of tables.

Table 6.2 Deaths: selected causes (International Classification)[1] and sex

England and Wales

Numbers (thousands) and rate for all deaths and age-standardised rates per million population for selected causes

Year and quarter	All deaths		All causes (age - standardised per million population[2])	Malignant neoplasms									
	Number (thousands)	Crude rate per 100,000 population		Oesophagus	Stomach	Colon	Rectosigmoid junction, rectum, and anus	Trachea, bronchus and lung	Melanoma of skin	Other malignant neoplasms of skin	Breast	Cervix uteri	Ovary
			A00-R99 V01-Y89	(C15)	(C16)	(C18)	(C19-C21)	(C33-C34)	(C43)	(C44)	(C50)	(C53)	(C56)
Males													
1971	288.4	1,207	13,466	76	317	187	144	1,066	10	12	4	:	:
1981	289.0	1,196	12,189	90	251	181	135	1,028	17	9	3	:	:
1991	277.6	1,125	10,291	117	185	194	117	842	23	10	3	:	:
2001	252.4	987	8,188	129	111	155	89	570	26	7	3	:	:
2002	254.4	990	8,126	131	110	151	91	561	27	8	3	:	:
2003	254.4	985	8,025	134	102	146	90	538	28	8	2	:	:
2004	245.2	943	7,595	129	95	142	92	522	30	9	2	:	:
2005	243.9	931	7,380	132	93	138	92	513	28	8	2	:	:
2006	240.9	913	7,123	131	83	132	90	509	31	7	2	:	:
2007	240.8	906	6,948	128	82	128	88	498	31	8	3	:	:
2008	243.0	907	6,852	131	78	129	90	495	31	7	2	:	:
2009	238.1	882	6,573	130	76	125	86	480	32	7	2	:	:
2007 March	65.4	998	7,615	126	88	132	86	522	33	7	2	:	:
June	58.2	879	6,755	130	84	122	86	493	31	8	3	:	:
Sept	55.2	824	6,339	128	80	126	87	470	29	7	3	:	:
Dec	62.0	926	7,095	129	78	132	94	509	31	9	3	:	:
2008 March	64.6	969	7,295	136	80	132	88	509	29	5	1	:	:
June	59.1	887	6,715	126	77	130	90	478	33	8	2	:	:
Sept	55.4	823	6,257	126	79	129	92	484	30	8	2	:	:
Dec	63.9	950	7,145	135	78	126	91	510	33	6	1	:	:
2009 March	65.9	990	7,310	129	71	131	84	480	28	7	2	:	:
June	56.6	841	6,281	134	77	123	87	487	33	7	2	:	:
Sept	54.5	801	6,003	130	78	120	81	468	33	8	3	:	:
Dec	61.1	898	6,710	126	78	125	92	486	33	8	2	:	:
2010 March[p]	63.8	950	6,943	127	72	118	89	475	34	6	2	:	:
June[p]	57.1	842	6,197	126	75	120	92	454	33	8	2	:	:
Females													
1971	278.9	1,104	8,189	40	149	176	79	183	14	6	379	83	126
1981	288.9	1,134	7,425	42	111	157	74	252	16	5	405	69	121
1991	292.5	1,122	6,410	50	74	146	61	300	18	4	401	54	118
2001	277.9	1,038	5,543	48	46	103	45	283	20	3	308	31	112
2002	281.0	1,046	5,539	51	44	103	44	285	19	3	302	29	112
2003	284.7	1,056	5,584	50	42	98	46	285	20	3	293	27	108
2004	269.0	994	5,277	48	42	96	47	284	19	3	285	27	102
2005	269.1	988	5,188	48	39	96	45	289	20	3	282	26	102
2006	261.7	956	4,988	48	35	93	46	300	19	4	277	24	99
2007	263.3	957	4,920	47	35	92	48	300	21	4	267	24	96
2008	266.1	961	4,897	47	35	90	48	307	22	3	263	23	93
2009	253.3	910	4,628	45	32	85	47	298	21	3	254	23	91
2007 March	74.0	1,091	5,522	50	35	92	49	314	22	4	284	25	95
June	62.8	916	4,756	48	31	88	45	296	22	4	267	22	97
Sept	58.8	847	4,407	40	37	91	47	285	21	3	251	22	96
Dec	67.7	976	5,006	51	37	96	49	305	20	4	268	25	94
2008 March	71.8	1,044	5,246	50	36	86	47	302	20	3	269	24	93
June	64.0	930	4,758	46	36	86	47	298	21	3	259	23	91
Sept	58.9	846	4,398	43	34	94	45	299	23	3	254	24	92
Dec	71.4	1,026	5,188	48	33	93	50	329	24	2	268	23	96
2009 March	73.0	1,064	5,287	45	32	88	49	301	19	3	267	23	91
June	59.1	852	4,373	45	32	82	46	294	19	2	252	23	90
Sept	56.2	801	4,138	45	31	82	45	288	20	3	241	23	90
Dec	65.0	926	4,728	45	33	86	46	310	25	4	255	22	95
2010 March[p]	70.7	1,022	5,077	43	35	87	47	320	20	4	252	23	95
June[p]	60.1	861	4,382	42	34	85	44	290	19	3	235	23	88

Notes: Figures represent the number of deaths registered in each year up to 1992 and the number of deaths occurring in each year from 1993 to 2001.
The number of deaths for 2002 onwards relate to registrations.
The rates by cause of death in this table are based on final underlying cause. For further details see the Explanatory Notes in the 'Report: Death registrations in England and Wales, 2004: causes' in HSQ26.
Death rates for 2002 to 2008 have been updated using revised mid-2009 population estimates which were published on 13 May 2010.
Death rates for 2009 have been updated using the latest 2009 mid year population estimates published on 24 June 2010.
Death rates for 2010 are provisional and based on the 2008-based population projections for 2010.

Table 6.2 continued **Deaths: selected causes (International Classification)[1] and sex**

England and Wales — Numbers (thousands) and rate for all deaths and age-standardised rates per million population for selected causes

Malignant neoplasms													
Prostate	Bladder	Leukaemia	Diabetes mellitus	Ischaemic heart disease	Cerebro vascular diseases	Pneumonia	Bronchitis, emphysema and other chronic obstructive pulmonary disease	Asthma	Gastric and duodenal ulcer	Diseases of the liver	Land transport accidents	Intentional self-harm and events of undetermined intent with inquest verdict 'Open'	Year and quarter
(C61)	(C67)	(C91-C95)	(E10-E14)	(I20-I25)	(I60-I69)	(J12-J18)	(J40-J44)	(J45-J46)	(K25-K27)	(K70-K76)	(V01-V89)	(X60-X84, Y10-Y34)	
													Males
198	124	74	82	3,801	1,541	920	944	21	107	41	209	124	1971
214	121	74	82	3,664	1,141	1,053	683	28	90	58	119	151	1981
304	121	77	131	2,984	940	391	606	31	73	76	125	160	1991
274	93	70	94	1,872	690	388	403	16	55	139	86	134	2001
272	90	68	91	1,792	692	389	398	16	56	145	93	134	2002
273	88	72	91	1,703	663	407	410	14	53	156	91	134	2003
267	85	67	83	1,570	596	361	366	15	50	152	85	133	2004
256	80	67	78	1,467	553	353	368	12	46	155	85	128	2005
250	81	68	74	1,353	520	320	343	10	45	161	83	123	2006
247	81	66	71	1,280	481	303	337	11	39	162	79	119	2007
240	79	65	73	1,211	467	301	346	10	40	164	70	125	2008
239	79	64	66	1130	432	283	320	10	37	157	61	127	2009
252	83	66	77	1,441	541	395	433	11	44	178	84	115	March 2007
246	80	69	65	1,249	465	286	311	11	36	154	77	121	June
233	78	61	65	1,146	429	226	265	9	35	152	73	116	Sept
257	82	69	75	1,287	489	306	338	11	40	167	82	125	Dec
239	75	64	75	1,325	514	362	413	11	48	164	68	108	March 2008
228	78	65	73	1,196	453	284	321	8	39	161	72	121	June
238	76	61	69	1,071	409	225	260	8	34	162	70	137	Sept
253	86	68	75	1,253	495	335	392	12	39	169	70	135	Dec
246	81	69	72	1,317	516	408	428	11	41	155	64	119	March 2009
237	78	59	63	1,071	400	248	286	9	37	149	58	125	June
234	76	64	59	1,005	382	203	250	8	35	155	57	125	Sept
240	82	64	70	1,131	430	278	316	11	35	169	63	138	Dec
244	74	63	69	1,205	482	334	377	11	38	170	48	112	March[P] 2010
231	73	60	61	1,074	411	235	294	6	33	151	50	118	June[P]
													Females
:	32	47	89	1,668	1,352	624	193	25	44	31	82	84	1971
:	35	47	66	1,601	1,012	740	155	30	57	43	41	81	1981
:	34	44	95	1,407	812	325	211	30	46	49	45	51	1991
:	29	41	62	878	620	307	220	19	39	77	23	40	2001
:	30	43	65	845	618	318	225	20	37	79	25	42	2002
:	30	39	66	813	606	336	243	19	36	80	28	42	2003
:	28	40	60	737	551	297	214	18	35	83	25	44	2004
:	28	39	56	686	518	297	224	17	32	81	23	43	2005
:	29	36	54	629	478	261	213	16	29	87	24	39	2006
:	27	38	53	592	454	251	218	14	26	87	23	35	2007
:	27	37	51	561	442	255	226	15	27	86	21	38	2008
:	27	37	49	504	407	228	206	13	24	83	17	38	2009
:	29	40	58	689	517	353	298	18	28	96	23	33	March 2007
:	29	36	49	569	439	228	204	14	27	85	27	31	June
:	24	34	50	520	399	178	156	12	24	80	22	35	Sept
:	26	41	56	591	464	249	217	14	26	86	20	39	Dec
:	29	36	54	612	485	319	263	17	28	91	21	33	March 2008
:	27	36	51	547	431	236	206	14	26	85	22	39	June
:	25	36	46	498	380	170	159	11	27	78	24	40	Sept
:	27	37	53	590	472	295	275	17	27	92	18	40	Dec
:	27	34	58	576	483	347	288	18	28	86	17	36	March 2009
:	28	35	45	490	377	188	180	12	21	82	16	37	June
:	27	39	46	448	349	160	147	9	22	76	15	39	Sept
:	26	39	47	503	421	220	209	13	25	88	19	38	Dec
:	24	37	54	542	457	279	257	18	26	95	14	35	March[P] 2010
:	24	36	46	464	371	191	195	13	23	80	15	40	June[P]

1 The Ninth Revision of the International Classification of Diseases, 1975, came into operation in England and Wales on 1 January 1979. TheTenth Revision of the International Classification of Diseases, 1992, came into operation in England and Wales on 1 January 2001. The cause descriptions and codes relate to ICD-10. For changes to this table see 'In Brief', Health Statistics Quarterly 14.

2 Directly age-standardised to the European Standard Population. See Notes to Tables.

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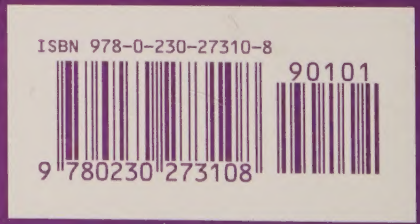

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